



AMERICAN FORESTRY

VOLUME 29

May, 1923

NUMBER 353

The Long Haul

Trailing a Firebug

A State That Abandoned Its Forests

Woods That Lure Fish

Exploring Wind River Glaciers

Pack Trails

The American Forestry Association

Washington, D. C.

OFFICERS OF THE AMERICAN FORESTRY ASSOCIATION 1923

President

HENRY SOLON GRAVES, Yale University, New Haven, Connecticut

Vice-Presidents

HON. M. L. ALEXANDER—Louisiana
Chairman, Conservation Commission

JOHN W. BLODGETT—Michigan
President, National Lumber Mfrs. Assn.

RICHARD F. BURGESS—Texas
President, Texas Forestry Association

GEORGE M. CORNWALL—Oregon
Publisher, The Timberman

DR. HENRY S. DRINKER—Pennsylvania
President, Pennsylvania Forestry Association

DAVID L. GOODWILLIE—Illinois
Chairman, Forestry Committee, United States
Chamber of Commerce

ANSON C. GOODYEAR—New York
President, Great Southern Lumber Company

MRS. WARREN G. HARDING—Ohio

BOLLING ARTHUR JOHNSON—Illinois
Publisher, Lumber World Review

WILLIAM KENT—California
Tariff Commission

A. W. LAIRD—Idaho
President, Western Forestry and Conserva-
tion Association

THOMAS H. OWEN—Oklahoma
President, Oklahoma Forestry Association

FILIBERT ROTH—Michigan
Dean of Forestry, University of Michigan

HARVEY N. SHEPARD—Massachusetts
President, Massachusetts Forestry Association

HON. B. H. SNELL—New York
Member of Congress from New York

BONNELL H. STONE—Georgia
Chairman, Georgia Forestry Committee

LOU D. SWEET—Colorado
President, Colorado Forestry Association

W. D. TYLER—Virginia
President, Southern Forestry Congress

HERMANN VON SCHRENCK—Missouri
President, Missouri Forestry Association

HON. JOHN W. WEEKS—Massachusetts
Secretary of War

MRS. T. G. WINTER—Minnesota
President, Gen. Federation of Women's Clubs

Treasurer

ROBERT V. FLEMING, Vice-President, Riggs National Bank, Washington, D. C.

Assistant Treasurer

IORWERTH JOHN ROBERTS

Executive Secretary and Forester

OVID M. BUTLER, 914 Fourteenth St., Washington, D. C.

Business Manager

C. V. MAUDLIN

Board of Directors

W. A. BABBITT, 1923—Indiana
American Wood Turners' Association

ELBERT H. BAKER, 1925—Ohio
American Newspaper Publishers' Assn.

ELBERT F. BALDWIN, 1923—New Jersey
Editor, The Outlook Magazine

ROBERT P. BASS, 1924—New Hampshire
Ex-Governor of New Hampshire

NELSON C. BROWN, 1923—New York
Forestry Instructor, Syracuse University

F. W. BESLEY, 1925—Maryland
State Forester of Maryland

W. B. GREELEY, 1926—District of Columbia
United States Forester

GEORGE S. LONG, 1927—Washington
National Lumber Manufacturers' Association

GEORGE HEWITT MYERS, 1923—Washing-
ton, D. C.

GEORGE D. PRATT, 1927—New York
Former New York Commissioner of Con-
servation

JOSEPH HYDE PRATT, 1923—North Carolina
North Carolina Geological Survey

GEORGE W. SISSON, JR., 1925—New York
American Paper and Pulp Assn.

E. A. STERLING, 1926—New York
Forest Engineer

J. R. SWIFT, 1923—Pennsylvania

WM. F. WHARTON, 1923—Massachusetts
Director, Massachusetts Forestry Association

Declaration of Principles and Policy of the American Forestry Association

IT IS A VOLUNTARY organization for the inculcation and spread of a forest policy on a scale adequate for our economic needs, and any person is eligible for membership.

IT IS INDEPENDENT, has no official connection with any Federal or State department or policy, and is devoted to a public service conducive to national prosperity.

IT ASSERTS THAT forestry means the propagation and care of forests for the production of timber as a crop; protection of watershed; utilization of non-agricultural soil; use of forests for public recreation.

IT DECLARES THAT FORESTRY is of immense importance to the people, that the census of 1919 shows our forests annually supply over two billion dollars' worth of products; employ

755,000 people; pay \$773,000,000 in wages; cover 470,000,000 acres not required for agriculture; regulate the distribution of water; prevent erosion of lands; and are essential to the beauty of the country and the health of the nation.

IT RECOGNIZES THAT forestry is an industry limited by economic conditions, that private owners should be aided and encouraged by investigations, demonstrations, and educational work, since they cannot be expected to practice forestry at a financial loss; that Federal and State governments should undertake scientific forestry upon National and State forest reserves for the benefit of the public.

IT WILL DEVOTE its influence and educational facilities to the development of public thought and knowledge along these practical lines.

It Will Support These Policies

National and State Forests under Federal and State Ownership, administration, and management respectively; adequate appropriations for their care and management; Federal co-operation with the State, especially in forest fire protection.

State activity by acquisition of forest lands; organization for fire protection; encouragement of forest planting by communal and private owners, non-political departmentally independent forest organizations, with liberal appropriations for these purposes.

Forest Fire Protection by Federal, State, and fire protective agencies, and encouragement and extension individually and by co-operation; without adequate fire protection all other measures for forest crop production will fail.

Forest Planting by Federal and State governments and long-lived corporations and acquisition of waste lands for this purpose, and also planting by private owners, where profitable, and encouragement of natural regeneration.

Forest Taxation Reforms removing unjust burdens from owners of growing timber.

Closer Utilization in logging and manufacturing without loss to owners; aid to lumbermen in achieving this.

Cutting of Mature Timber where and as the domestic market demands it except on areas maintained for park or scenic purposes, and compensation of forest owners for loss suffered through protection of watersheds, or on behalf of any public interest.

Equal protection to the lumber industry and to public interests in legislation affecting private timberland operations, recognizing that lumbering is as legitimate and necessary as the forests themselves.

Classifications by experts of lands best suited for farming and those best suited for forestry; and liberal National and State appropriations for this work.

AMERICAN FORESTRY

THE MAGAZINE OF THE AMERICAN FORESTRY ASSOCIATION

WASHINGTON, D. C.

OVID M. BUTLER, Editor
L. M. CROMELIN, Assistant Editor

Vol. 29

MAY, 1923

No. 353

CONTENTS

THE LONG HAUL FROM THE WOODS—Earle H. Clapp.....	259
With seven illustrations	
TRAILING A FIREBUG—Will C. Barnes.....	265
With five illustrations	
THE MATRIMONIAL TREE—R. E. McNatt.....	269
With one illustration	
THE AGE OF MONTEREY CYPRESS—George B. Sudworth.....	270
With three illustrations	
WOODS THAT LURE FISH—Howard F. Weiss.....	272
With four illustrations	
IMPRESSIONS FROM A SOUTHERN JOURNEY—Senator Charles L. McNary.....	276
A STATE THAT ABANDONED ITS FORESTS—Tom Wallace.....	277
With five illustrations	
MARK LEIGH ALEXANDER.....	282
With one illustration	
EDITORIAL.....	283
I, SLIM SPRUCE.....	286
With two illustrations	
EXPLORING GLACIERS IN THE WIND RIVER MOUNTAINS.....	288
With twelve illustrations	
CALIFORNIA STUDENTS BUILD THE "FORESTER'S CIRCLE".....	297
With one illustration	
MAY DUSK—Poem by Grantland Rice.....	298
PACK TRAILS INTO BACK COUNTRY—Arthur H. Carhart.....	299
With twelve illustrations	
THE STORY OF THE BOBOLINK—Fanny S. Simmons.....	306
AMERICA'S TRANSITION FROM OLD FORESTS TO NEW—E. T. Allen.....	307
With four illustrations	
A WORN-OUT FIELD—Poem by Maud Morrison Huey.....	311
THE NATIONAL CONFERENCE ON STATE PARKS.....	313
With one illustration	
BOOK REVIEWS.....	318

Published Monthly—40 cents a copy—\$4.00 a Year

CHANGE OF ADDRESS

A request for change of address must reach us at least thirty days before the date of the issue with which it is to take effect. Be sure to give your old address as well as the new one.

Publication and Business Office, 914 Fourteenth Street, Washington, D. C.

Entered as second-class mail matter at the Post-office at Washington, D. C., under the Act of March 3, 1879. Acceptance for mailing at special rate of postage provided for in Section 1103, Act of October 3, 1917, authorized July 10, 1918.
Copyright, 1923, by The American Forestry Association.

Have YOU pined for a home'mid the whispering leaves?

Have you dreamed and dreamed of a cozy little abode 'neath the shade of beautiful trees?

Have you pictured a lovely Arcadia, somewhere, bathed in the sun's ethereal light?

Have you fancied yourself basking in the glowing comfort of your own domain in a land of perpetual summer?

Well, you are nearer that little home in the Southland than you imagine! You can take advantage of a new Easy Ownership Plan, originated for thrifty men and women!

The love of beautiful trees, the longing for an independent income, the cherished hope of that little Eden of your own—all these can be yours through the least bit of effort on your part today.

You can own an orchard of pecan trees on the wonderful Keystone Plantations; you can grow these big thin-shell pecans in abundance—with their large, delicious, meaty kernels and exquisite flavor. You can have an ample supply for your friends and you can have a generous crop to sell each year at good prices.

Stately Trees That Grow For a Hundred Years

These beautiful, tall, stately pecan trees are marvelous for their long life and productiveness. They produce these big thin-shell pecans for a hundred years.

These trees become your staunch friends—your tried and trusted benefactors. They do not fail you.

They grow and yield and grow and yield—on and on—year after year!

They bring to you many blessings and good things of life beside their own delicious fruits—for your profits grow with each season, as do your happiness and contentment with life itself.

If you have ever eaten these delicious, big, thin-shell pecans, you surely know they are the most delicious nuts you have ever tasted.

The large kernel has a flavor that is beyond description—it has a supreme richness and delicacy so satisfying to the palate. No other nut can equal it.

These big pecans are the finest thing in the world for your health. They abound in energy-producing nutriment! They give you new strength and vitality.

Thousands of bright, ambitious men and women, everywhere, are now eating these nuts as part of the daily diet, dispensing with heavier and less digestible foods.

Elam G. Hess, President,
Keystone Pecan Company,
Box 422, Manheim, Pennsylvania.

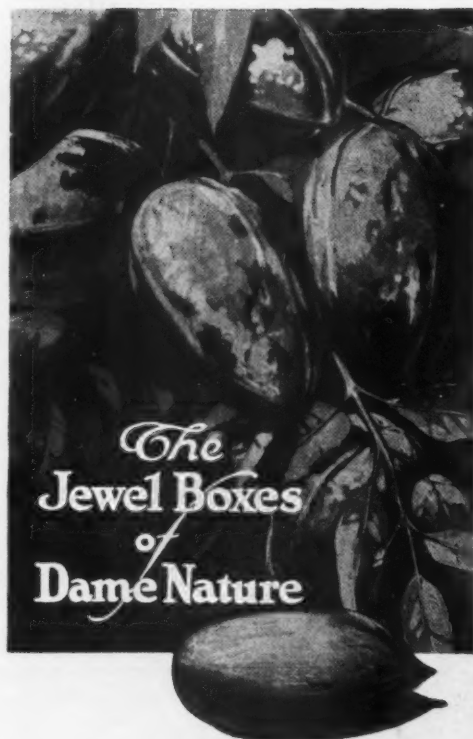
I accept your Free Offer to send me postpaid one copy of your book, "The Jewel Boxes of Dame Nature."

(Please write name and address plainly)

Name.....

Street.....

City..... State.....



A Beautiful Book, In Colors, Sent To You Free

The Keystone Pecan Company has just published a beautiful, illustrated book in many exquisite colors. Its pictures show the true, natural beauty of these pecan trees, and illustrate the many pleasures and advantages of pecan growing in this sunlit land of the South.

A copy of this magnificent book is waiting for you. It is absolutely free and there is no obligation whatever in your sending for it today. Simply use the coupon below.

Don't wait until the company's present allotment of these orchards has all been taken. The news of this amazing new Easy Ownership Plan has travelled far and wide, with the result that requests and reservations are coming by mail and telegraph from all quarters.

Your chance to own one of these orchards and later to build your hearthstone in the shade of these sheltering trees will be gone unless you act now.

Realize your hopes of future happiness and an independent income. You might as well. The opportunity is before you—and the beautiful book referred to will explain everything.

Sent postpaid to any address without charge, upon receipt of this coupon. Use it now.

AMERICAN FORESTRY

VOL. 30

MAY, 1923

No. 353

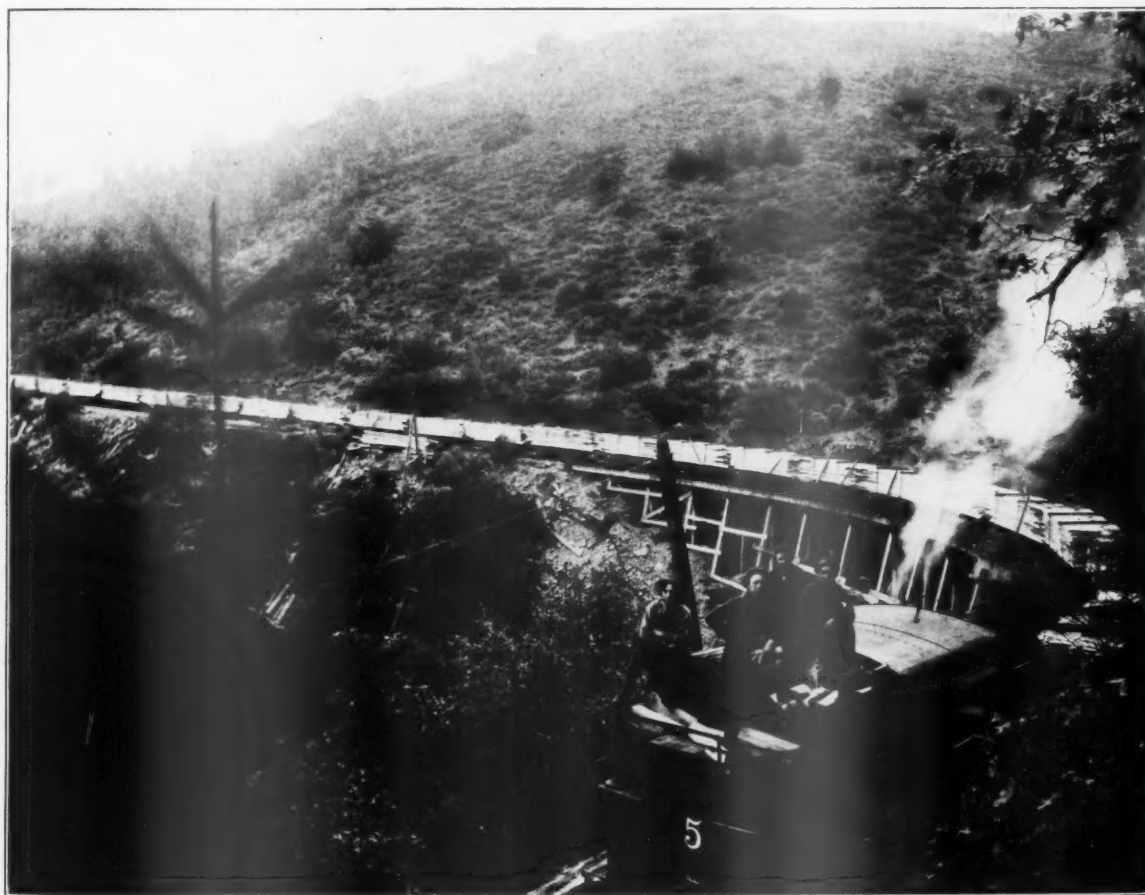
The Long Haul From the Woods

BY EARLE H. CLAPP

LUMBER was one of the few products which the English colonies in America were able to supply to the mother country. The freight on one cargo from Maine in 1714 was \$20 per thousand board feet, at a time when in the New England markets lumber was selling for around \$5 a thousand. To cover purchase price and freight alone, it must, therefore, have sold in Great Britain for at least five times the price which the colonists had to pay. Lumber also was no inconsiderable part of the early traffic on the Mississippi River. A purchaser in New Orleans paid \$40 a thousand in 1806 for Pennsylvania white pine, a price low enough under pres-

ent-day standards, but very high in comparison with the \$10 to \$15 which consumers in Pennsylvania paid at the same time. The long haul across the Atlantic in one case and that down the Mississippi in the other was responsible for multiplying several times the price of the product to the final consumer.

The long lumber hauls of early days were, however, the exception rather than the rule, and it is only within the last few decades that for the people of the United States in general the cost of lumber transportation has been an item of major importance. The development of the lumber haul falls logically into two rather distinct



(Photograph by Erickson, Courtesy National Lumber Manufacturers Association)

PACIFIC COAST LUMBER ON THE WAY FROM THE SAWMILL TO THE MAIN-LINE RAILROAD--THE BEGINNING OF THE LONG HAUL ACROSS THE CONTINENT FOR WHICH THE CONSUMER NOW PAYS \$25 A THOUSAND BOARD FEET RAILROAD FREIGHT IN DIRECT CHARGES AND TWICE AS MUCH OR MORE INDIRECTLY

periods or phases. In the first, local and later regional shortages resulting from forest depletion were met by the gradual development of transportation and shipments from other timber regions. These local shortages began even in early colonial days, and have since grown gradually in extent. After the Civil War entire regions began to be affected, and now practically every consumer in the United States is concerned.

This first period has lasted nearly 300 years only because of the enormous quantity and wide distribution of the virgin supplies and the great development of transportation facilities. Transportation coastwise, by river, lake, and rail, has been almost as much a key to the situation as the timber itself. Virgin timber supplies and relatively cheap hauls explain in large part the non-use of some 80 million acres of cut or burned-over forest lands. For well towards three centuries they lulled us into a false sense of security. They have postponed almost to the present day a national awakening to the real character of our timber situation.

Out of the first period has gradually emerged a second, in which the distance between lumber manufacturer and consumer has become so excessive and the long haul has become so heavy an economic burden that it is not only becoming feasible, but profitable, to grow timber locally in competition with distant virgin stands. This is because a large part of the freight charge can instead and with benefit to all concerned, be paid as stumpage to the man who grows the timber near its market.

Until the Civil War, the common long lumber hauls in the United States are fairly well represented by those from Maine to Boston, from the upper Hudson to New York City, and the upper Delaware and Susquehanna to Philadelphia, all water-borne traffic, because no other was feasible, even to these distances, without excessive costs. Distances were from 200 to 400 miles.

Although little information is available on the cost of early shipments, it is certain that they were low. Lumber prices in New England prior to 1740 averaged less than \$5.50, and from that date to 1765 only approximately \$8 a thousand board feet. New York and Pennsylvania prices prior to 1765 averaged around \$10 or less. Obviously, after allowing for logging and manufacture, this left a very small margin for the cost of transportation. Even during the period between 1840 and 1860 the price of average grade softwood boards in eastern markets was only about \$10.50.

Eighty per cent of the entire lumber cut has been taken from the forest since 1870, when the production was only about 12¾ billion feet. The great increase in lumber production, and hence in lumber transportation, has gone along with the phenomenal industrial development of which we were on the threshold at the beginning of the Civil War—a development made possible by an abundant and easily accessible supply of virgin forests.

THE BEGINNING OF THE LONG HAUL

With the ever-growing demand for lumber and the exhaustion of eastern forests following the Civil War, white-pine lumbering in the Lake States, making full use of exceptional facilities offered by the Lakes, the Erie Canal and Hudson, and the Mississippi River for cheap transportation, marked the real beginning of the long lumber haul in the United States. From Saginaw to New York lumber traveled 1,000 miles, about the minimum distance to the coast, and even to supply many of the rapidly expanding middle western markets Michigan,

HOW THE LONG HAUL HAS INCREASED OUR LUMBER BILLS

This chart illustrates with unpleasant impressiveness the extent to which the increasingly long haul from the forest, forced upon the American consumer by a constantly receding timber frontier, is stacking the lumber dollars against him. America's terrific consumption of wood during the past half century has, through regional forest exhaustion without forest renewal, lengthened the freight haul on lumber to eastern markets from a few hundred to as much as 7,000 miles. Wholesale lumber prices (unit, one thousand feet) in eastern markets are here compared.



\$10.50

Price of lumber, 1840 to 1860. Markets supplied by local pine on short haul. Freight, \$1 to \$2.



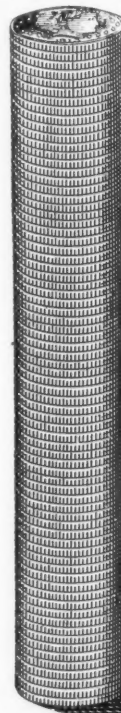
\$16.00

Depletion of eastern forests forced 1,000-mile haul for Lake States pine, 1866 to 1900. Freight, \$3 to \$7.



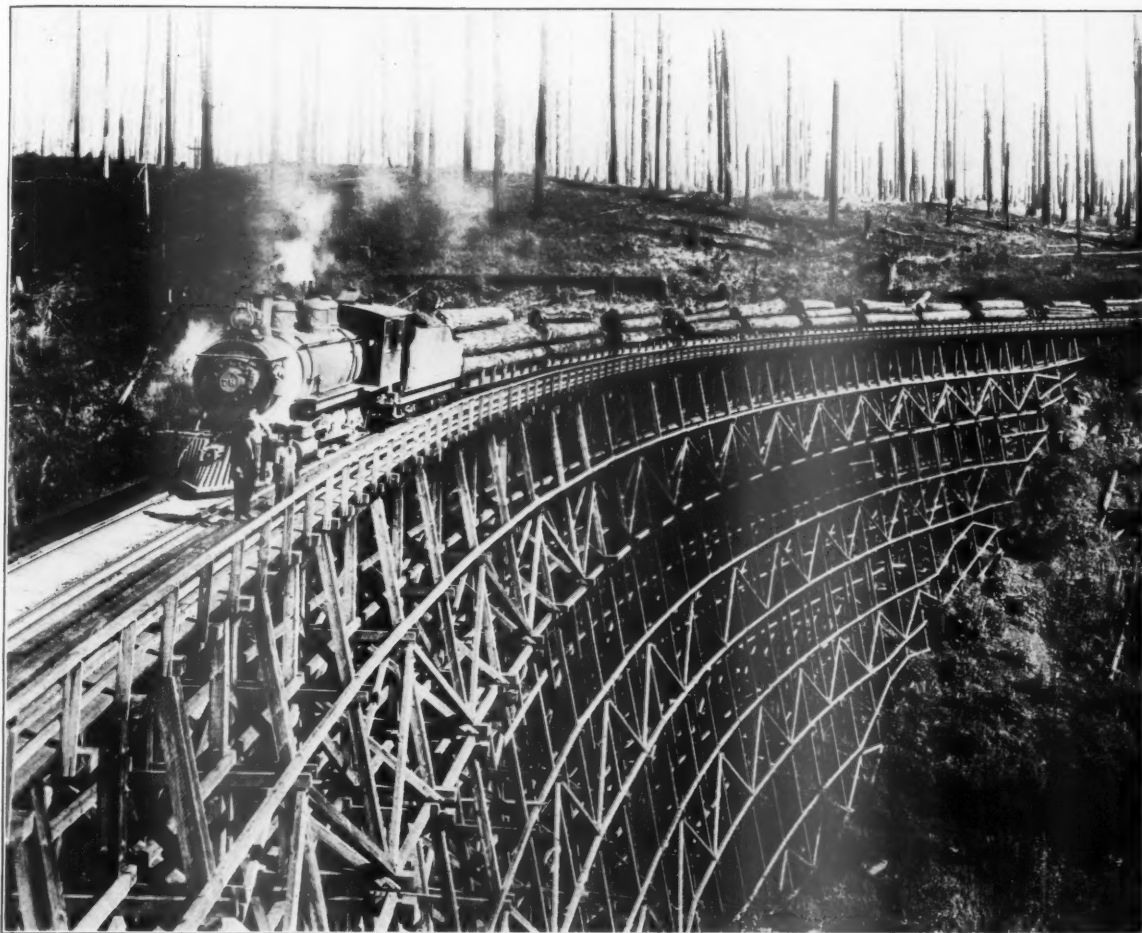
\$25.00

Exhaustion of Lake States pine lengthened the haul to southern pine, 1900 to 1915. Freight cost, \$6 to \$12.



\$75.00

The long haul of 1920. Southern pine and Pacific Coast fir, 1,000 to 7,000 miles distant. Freight, \$15 to \$25.



A LOGGING OPERATION FAR DISTANT FROM REGIONS OF CONSUMPTION. THE LONGER AND MORE EXTENSIVE THE HAUL FROM THE WOODS, THE MORE WASTEFUL THE UTILIZATION OF POORER LOGS, LOWER LUMBER GRADES, INFERIOR SPECIES, AND SUCH PRODUCTS AS POSTS AND FUELWOOD BECOMES

and later Wisconsin and Minnesota, pine moved more than 500 miles, this in contrast with the 200 to 400 miles which characterized the long haul prior to the Civil War.

When it became necessary, following 1890, to draw upon southern pine to meet still expanding middle western and eastern lumber markets, which the Lake States pine could no longer supply, both rail and water routes between the sawmill and the lumber consumer lengthened still further. From Savannah, representative of the southern Atlantic, and Mobile, of the Gulf Coast, distances to New York City were 800 and 1,900 miles respectively. Rail shipments, aside from purely local use, commonly ranged from 750 miles upward, and those exceeding 1,000 miles were common.

But even these distances were short compared with those from the Douglas fir and western yellow and sugar pine stands of the west coast, to which the rich agricultural regions and the voracious industrial centers of the Middle West and East are more and more being forced to turn for lumber. The rail haul from Portland to the Middle West is 2,000 miles or more, and that to the Atlantic coast 3,000, while the water route through the

Panama Canal is 7,000 miles between Puget Sound and New York.

This increase in length of haul from the few miles by wagon or sleigh or the 200 miles by water of colonial days to the present 3,000-mile rail haul and 7,000-mile water haul between the Pacific and Atlantic coasts could have only one effect on costs. Lumber transportation, which during early days cost only \$1 to \$2 a thousand feet, is now costing, in many cases, as much as \$25 a thousand and more. For each center of large consumption the increase has come by successive steps, as lumbering operations have been forced by forest depletion to more and more distant regions. With these increases in transportation distances and costs have inevitably come also corresponding increases in the prices of lumber.

FREIGHT ADDS \$250,000,000 TO LUMBER PRICES

The effects of regional shifts in sources of supply upon transportation costs and resulting lumber prices are indeed strikingly clear-cut. The wholesale price of average grade softwood boards in eastern markets between 1840 and 1860 averaged about \$10.50 a thousand feet. This

was a period of relatively short hauls, where the cost of transportation probably ranged around \$1 to \$2 per thousand board feet. After the Civil War, however, when New York and the eastern markets became increasingly dependent upon Lake States pine, lumber prices rose and held roughly at \$16 from 1866 to 1900. The increase was about equal to the increase of \$3 to \$7 in freight costs.

After 1900 southern pine lumber rapidly replaced Lake States pine in the eastern markets. A new price level, averaging about \$25, was the result, and this held until the beginning of the World War, when shipments from the Pacific coast began in volume and the general inflation increased the freight cost still further. Schooner shipments of lumber from the southern ports to New York, for example, ranged from about \$6 in the case of Savannah to about \$7 for such Gulf ports as Mobile. Rail

paying only \$1 freight per thousand feet or less upon lumber cargoes and a maximum of \$2.50 to \$3. Southern pine to the Chicago market from such a point of shipment as Hattiesburg, in the years following 1900, paid the railroads approximately \$8 per thousand feet, and the common boards which replaced the white pine of similar grade sold at prices ranging from \$20 to \$25.

If further evidence were needed, economists have furnished still another measure of the effect of lumber freight upon lumber prices. The Bureau of Labor Statistics of the Department of Labor has compiled all commodity prices for 1840 to the present. When the all-commodity average for 1840 and the price of softwood lumber of average quality in eastern markets for the same year are taken at 100 per cent, a comparison of changes throughout the subsequent years shows that lumber values and all



(Photograph by Erickson, Courtesy National Lumber Manufacturers Association)

EN ROUTE TO THE MILL AT TIDEWATER ON THE PACIFIC COAST, FROM WHICH THE LUMBER OFTEN TRAVELS 3,000 MILES BY RAIL OR 7,000 MILES BY WATER TO THE FARMS AND CITIES ON THE ATLANTIC

rates to New York were about \$12 from such points of manufacture as Hattiesburg, Mississippi. Here again increased transportation costs from a more distant lumber manufacturing region were immediately reflected in higher levels of lumber prices. Softwood prices in eastern markets have not stabilized since the World War; but, with water rates from the Pacific coast now averaging \$15 or more and rail rates averaging about \$25, there is good reason to doubt if prices will again fall to the level which obtained between 1900 and 1914.

One more example from the Middle West makes still more conclusive the effect on lumber price levels of increasing transportation costs. Until a scant 25 years ago the Chicago market held the advantage accruing from essentially local timber supplies and low lake transportation or corresponding low competitive rates by rail. Retail prices in the Chicago market on rough white pine boards varied mostly between the now inconceivably low prices of \$10 and \$13 per thousand board feet; but throughout this entire period the Chicago consumer was

commodity values held together very closely only until about 1865. Since that date lumber prices have increased more rapidly.

Strikingly enough, the only period during which lumber and all-commodity prices held closely together was that in which eastern markets were supplied by local lumber-producing regions with a short and inexpensive haul. With the advent of Lake States pine subsequent to the Civil War, lumber prices were higher than the prices paid for all-commodities, the difference for the period 1870 to 1900 averaging about 70 per cent. During the dominance of southern pine lumber in eastern markets, values separate still further, and between 1900 and 1914 lumber averaged about 140 per cent higher. The 1915 dollar purchased as much of all-commodities as in 1840, but it required \$2.34 to purchase as much lumber as did \$1 in 1840. The difference following the coming of Douglas fir is still more pronounced. Lumber which cost \$100 in 1840 cost \$510 in 1921, while all-commodities which cost \$100 in 1840 could be bought for \$143 in 1921.



(Courtesy National Lumber Manufacturers Association)

LUMBER REALLY STARTS ON ITS LONG JOURNEY FROM WOODS TO MARKET WHEN THE TREE IS FELLED AND THE LOGS HAULED TO THE SAWMILL. THIS FIRST LAP GROWS MORE COSTLY AS THE FOREST BECOMES MORE DISTANT FROM THE SAWMILL. HERE ARE THREE CALIFORNIA PINE LOGS LEAVING THE WOODS EN ROUTE FOR THE SAW

The total lumber freight bill was very small throughout a long period of colonial and early Federal history. It has grown rapidly, particularly with the cutting of the Lake States and southern pine, and the increases in distances and in freight tariffs since 1907, when the lumber cut reached its crest, have been more than enough to offset the reduction in cut. For 1920 the lumber freight bill aggregated about \$250,000,000, more than 90 per cent of which was paid for railroad transportation. This was for lumber alone, a product which constitutes only 37 per cent of the total cut from our forest. While many of the other forest products enter much less into traffic, the total bill for all products was considerably larger.

HAULING COSTS MULTIPLIED TO THE CONSUMER

Unfortunately, however, the freight on each thousand feet and the total freight bill on lumber no longer tell the whole story. Vertical grain Douglas fir flooring during the month of August, 1922, paid a freight of \$12.50 to Minneapolis, where the retail price exceeded the average retail price of Portland, Seattle, and Bellingham, Washington, during the same month by \$28. Flooring of the same grade paid a freight of \$18 to Boston, but sold retail at an increase of \$40 over

the retail price in the Northwest. In other words, the cost of lumber transportation was more than doubled in the final retail price to the consumer. To the retail dealer freight is merely one item of cost, and, since he ordinarily figures profit on a percentage basis, higher freights increase profits, and hence prices accordingly.

But the retail lumber dealer is only a single instance of a long series in which the cost of transportation is multiplied. For example, in furniture-making the manufacturer tries to secure a profit on his costs. The furniture dealer commonly adds 100 per cent to the factory price in order to determine the retail sale price, and thereby doubles the lumber freight bill by this transaction alone.

Since the same general practice of percentage increases is followed in a long list of other products, and lumber in some form is used in the production of practically every commodity, the \$250,000,000 paid in 1920 by the people of the United States in lumber freight was only a part of the total sum which they actually paid in various direct and indirect, obvious and concealed, forms for the transportation of lumber. The influence of freight is ordinarily lost sight of in such lumber products as the dwelling-house and furniture, where it should be fairly obvious, but in the



FOR MANY YEARS SHORT, CHEAP LUMBER HAULS BY WATER FROM MAINE TO THE COAST CITIES OF NEW ENGLAND SUPPLIED LOCAL LUMBER SHORTAGES SO CHEAPLY THAT NO PROVISION WAS MADE TO MEET FUTURE REQUIREMENTS

production of food, clothing, and fuel, and the manufacture of iron, steel, copper, and their myriad products, it is rarely considered. The \$250,000,000 freight bill was probably, therefore, doubled at least and possibly even trebled or more in its ultimate ramifications.

THE LONG HAUL URGES TIMBER GROWING

The long haul has therefore become an excessive burden. Some of this burden we have realized, but much of it is so concealed in the indirect use of lumber and in the higher cost of other articles that for the most part we have known and complained of it only as a part of the high cost of living. These excessive costs of transportation and the unfortunate economic and social consequences which have grown out of them have been bringing about the second period in our transportation situation.

When it costs up to \$25 a thousand to ship lumber from Portland to Boston and \$15 a thousand from the southern pine belt, it is not surprising that such volunteer second-growth timber as there may be in the North Carolina pine region and New England, both with much shorter and cheaper hauls to markets, is

appreciated in value. Large freight differentials go a good way in discounting the size and the quality of the second-growth pine on abandoned farms, as contrasted with the high-grade material which it is still possible to cut from the southern and Pacific Coast forests.

Because it is relatively near its markets, second-growth "North Carolina" pine in Maryland, Virginia, and North Carolina has accordingly of late years held its own or more in actual sale values with the higher grade virgin stumpage of the Gulf States. Despite fluctuations, second-growth pine values have on the whole risen steadily with those of virgin timber. They now average about \$7 a thousand, which is approximately the advantage this region has over the extreme South in lumber freight rates

to Philadelphia, New York, and Boston, while the virgin timber commands a price of about \$9.

Recent studies of the prices actually paid on the stump for white pine second growth in central New England show still more striking conditions. Values had reached \$9 by 1915. For 1922, allowing even for a falling off since the abnormal prices of 1920, white-pine stumpage averaged about \$14 a thousand, apparently somewhat higher than prices paid for virgin timber in the Lake States.

GROW FORESTS AND SHORTEN THE HAUL

For approximately the last ten years second-growth pine in central New England, almost at the doors of the factories which use it for boxboards, has commanded the highest prices paid for soft-wood stumpage in the United States.

While stumpage price is a fair measure of returns, it falls far short of representing the entire advantage of the short haul to the timber-grower. Inferior species, small sizes, low grades, all acquire a greater value. Low freight rates make it possible to sell at a profit the lower grades of lumber which, in the case of distant markets, must ordinarily



(Photograph by Erickson, Courtesy National Lumber Manufacturers Association)

OXEN HAVE FREQUENTLY FURNISHED MOTIVE POWER FOR LOGGING FROM COLONIAL DAYS TO THE PRESENT. THEY WERE SOMETIMES USED ALSO IN EARLY DAYS IN THE SHORT LUMBER HAULS OVER DIRT ROADS FROM SMALL COMMUNITY SAWMILLS DIRECT TO THE CONSUMER

be handled at a loss or wasted. Fuelwood, posts, mining props, and similar products on which railroad rates are ordinarily prohibitive, except for short distances, can be moved. Logs and trees can be taken from the woods which otherwise would have to be left.

Most of these advantages to the grower of timber become also advantages to the consumer, in lower lumber prices, in the opportunity to secure low grades for the purposes for which they are suitable, in the opportunity to buy such products as fuelwood, posts, and mining props, which otherwise could not be obtained except at prohibitive prices, and in all the benefits which come from near-by rather than distant sources of forest supply.

Communities, forest regions, and incidentally states and

[Continued on page 320]

Trailing A Firebug

The District Ranger Finds a Goat, a Baby, and Some Camels

BY WILL C. BARNES

"**T**ALK about trailin' firebugs," remarked the district ranger as we sat on the porch of his little log cabin. "Ever hear of the chap I nabbed last summer for startin' a forest fire up on Pine Creek?" He chuckled at the recollection.

No, I hadn't; but, needless to say, I was more than anxious to hear about it. The ranger paused to relight his pipe, a smile still flickering under his drooping mustache.

He was the type that, alas for the Service, is fast dropping out of the work through advancing years and physical infirmities. These old fellows, who found their way into the Service in its early days, were men whose like are fast disappearing—miners, cowboys, sheep-herders, lumberjacks, and no small number of college chaps—young, adventurous, full of pep and fight, caring little for the meager pay they received, \$60 a month and find yourself, and buy your own tools besides. Some of their old reports lack polish; many words are misspelled; their writing is often illegible.

Those were the days of saddle-horses and pack-mules, long, hard rides and longer hours. They knew little or nothing of the technical side of their work.

Enough for them to know that fire was the arch enemy of the forest, and that their job was to put it out. An "A" tent was their ranger cabin, and when it was necessary to send word for more fire-fighters, a good horse and an all night's ride over wretched trails carried the word, whereas now the telephone is found in almost every nook and corner of their domain.

Of such as these was this gray-haired, keen-eyed, ruddy-faced district ranger. He had served the Government all over the West. He fought the fires of 1910 in the white pines of the Cœur d'Alenes in Idaho till he was almost blind. A year later he was in the Medicine Bow

Range, in Colorado among the lodge-pole timber. Later, he drifted into northern New Mexico, and then westward into the yellow-pine country of northern Arizona, where the ground fires run like race-horses in the dry grass and needles; where water is scarce and where men's thirst drives them almost insane while on the fire lines.

In 1916 he was in the midst of the conflagrations that covered all southern California, when brush, not trees, was to be saved—the hardest fires to fight in all the known world. He was a "big-timber" man, however, and while saving trees was worth while he found little satisfaction in saving brush from the fire fiend. And now, in the Sierras, he had found a region where the trees were old when the shepherds saw the Star of Bethlehem. Here was timber that was well worth the fight of a man's life to save.

"Last summer up here was powerful dry," he began at last, "an' everybody was watchin' mighty close for the least sign of smoke. We had a lot of guards and short-season men out in the hills, but the supervisor kept some of us old-timers close to our stations, where we could get the first news of a fire and start things movin'. It was sure hard work settin' round all

day long waiting for something to happen. Recollect that piece of poetry Bristow Adams wrote about the man who had to stay in the office while everybody else was out fightin' fires?"

"I wish I were out with the fellows;
Just my luck to be stuck here in town;
But I've got to sit tight when I'd heaps rather fight
To help keep these brush blazes down.
I'm sick of this end of the business:
The ring of the querulous phone,
The telegrams, too, of flames breaking anew,
While I have to stand it alone;
And I'll own
It's hell to be watching alone.



THOSE WERE THE DAYS OF SADDLE-HORSES AND PACK ANIMALS—LONG, HARD RIDES AND LONGER HOURS

"There's Bill—he's gone with the pack-train;
 And Jim—he's to rustle the grub
 For the men on the line, and he's doing it fine,
 While I'm sitting here like a dub.
 The fellows are working like demons;
 They're scorching and blistered—no less—
 While I stay and chafe and am damnably safe,
 When I'd like to mix up in the mess.
 Well, I guess
 That the buck-brush ablaze is a mess.

"Out there are my supers and rangers,
 With lumberjacks, men from the mills,
 From fields and from slums—hoboes, tie-hacks, and bums,
 And ranchers who know all the hills;
 While I'm here, with no smoke in my nostrils;
 I am here, with no scorch on my cheek,
 When I'd rather be there, with singed eyebrows and hair,
 Than stuck in here week after week.
 Hear me speak?
 I'll be bughouse inside of a week."

The old ranger rolled the lines off as if his whole heart was in them.

"That's just the way we all felt who had to stick round and listen for the jingling of that 'phone bell. It was sure the hardest bit of work any of us ever had to do. One day I was settin' in my cabin half asleep when d-i-n-g-a-l-i-n-g-g-g-g-g-g-g-g-g goes that ornery bell. Outside the cabin the whole world seemed to be listenin'

to the droning of the katydids in the dry woods. Down along the pasture fence the horses was fightin' flies head to tail for mutual protection. It was hot, and up there in them big hills it can sure git hot when it tries, even with great snowbanks showin' all round.

"I heered the bell, but somehow didn't come to till it rattled away another long ding a ling-g-g-g-g-g-g-g-g. Then I comes alive. It's that lady lookout up on Shut Eye and she tells me there's a smoke rising straight up from the big timber down along the main road. 'Campers', says she, 'as sure as fate, for there ain't been no lightnin' storms down that way for several days. Some gent's gone fishin' and let his camp fire get away from him. Better git a move on.' She gave me the readin', which by the fire map shows me its in a mighty bad part of the forest an' was likely to be a humdinger of a fire before it was put out.

"Well, sir, I sure played in luck that day, for whilst I was givin' orders over the phone right an' left, along comes a young kid of a forest assistant an' his wife, driving a team on their way to Texas Flat, where he was to do some timber estimatin'.

"Here's my one only chance, sez I to myself, and it didn't take me five minutes to coax that kid to leave his wife at my cabin, to be ready to receive fire messages, and let me and him git out onto the firin' line, where I



IN THE SIERRAS, WHERE ARE FOUND TREES WHICH WERE OLD WHEN THE SHEPHERDS SAW THE STAR OF BETHLEHEM



AN OLD-TIMER—NO FANCY BUNGALOW HOUSED HIM AT NIGHT. HE WILL STAND FOREVER AS A TYPE THAT WILL NEVER AGAIN BE KNOWN IN THIS COUNTRY—A RUGGED BUT PICTURESQUE FIGURE OF A MAN DISTINCTLY A PRODUCT OF HIS TIME

sure knew we'd be needed. The kid was wild to go, him thinkin' fire-fightin' was a plumb picnic. Knows better by this time.

"Inside of twenty-five minutes we was on our way, saddled up with two pack animals loaded with tools and grub, his little wife a wavin' her hand to us as we turned the corner down the trail and out of sight of the cabin. Before we left I'd phoned for help in all directions and calculated some of them would git there about as soon as we did.

"When we reached the fire it didn't take us long to see we had a man's-sized job cut out for all hands. It was already spread over fifty acres or more, and a wind had come up which was carrying it through the dry needles and duff about as fast as a good man could walk. The kid and me gits there first and we set to work without losin' no time. Eventually we had ten men on the fire lines, and we didn't git her surrounded and under control before daylight the next morning—sixteen hours of steady work.

"It was about 2 o'clock that afternoon before we had the fire safe, an' then I left one man on guard, an' sending the others back, I stayed to keep an eye on some old snags that was burnin' and also to take a look around the country and see could I find out where and how it started, that bein', as you well know, the

last, but most important, part of the fire-fightin' biz.

"Natchelly I goes back to the road for my start, feeling sure it began along there somewhere, and that some camper feller was the cause of it.

"It was fairly easy to find the beginning, for the fire had eaten its way in a long, narrow strip for the first fifty yards or so before it began to spread out.

"Follerin' up the edge of this point, I found signs of a camp about fifty yards off the road. The road was used a lot by tincan tourists, and the tracks in the dirt showed plainly where he had turned off the road, driven his car under a big pine, and started his camp fire. I seen plain enough where the car

stood, for there was a big spot of black grease on the leaves and litter. Off to one side his bed had been made, and from the tracks here and there I sized it up as being two people—a man an' a woman. But I never in all my experience seen an outfit what left as little sign about a camp as those two. I found an empty match-box what had held them funny little Swedish tapers, an' the wrapper from a bunch of Camel cigarettes and some eggshells; also I notices a piece of white cotton rope, one end tied hard and fast round a saplin' about six feet up and about a foot of it hanging free.

"Looked like it had broken, and I studied it for some



LATER HE DRIFTED WESTWARD INTO THE TIMBERED COUNTRY OF NORTHERN ARIZONA, WHERE THE GROUND FIRES RUN LIKE RACE HORSES IN THE DRY GRASS AND NEEDLES, WATER IS SCARCE AND THIRST DRIVES THE MEN ON THE FIRE LINE ALMOST INSANE

time, tryin' to make out just what part it had played in the camp. Looking further, I found another saplin', about ten or twelve feet off, which showed plain signs of a rope havin' been tied around it at about the same height the other one was. Hammock, says I, and slips the piece of rope into my saddle-bag. Whilst I was lookin' round the tree that had the piece of cotton rope tied to it, I noticed a few white hairs stickin' to the trunk of the tree about two feet from the ground; also a little bunch of it lying on the ground. The hair was neither horse hair nor cow's hair. I knowed that much. Some small animal had been rubbin' hisself on that tree, and when I looks closer I finds some funny-looking tracks on the ground, that looked for all the world like goats' tracks. But what's a goat a doin' up there in that country? Far as I know, there ain't never been a goat within fifty miles of the place.

"So I takes a good sample of the hair and sticks it in an old envelope, puts it in my pocket, and rides off, not knowin' exactly what I'd do with it, but realizin' that a good detective don't overlook no signs, no matter how simple.

"The way the fire got out was as plain as the nose on your face, for it was easy to see they'd pulled out in the morning leavin' their camp fire burnin', and it had spread slowly for a long time, workin' its way in the deep duff until it reached a big dry pine lying on the ground. From that point it spread rapidly, the wind probably helpin' matters.

"Several cars had gone down the road after he'd turned into it, so I didn't git much of a chance to learn

what kind of tires he had, 'ceptin' in one place near his camp, where one rear wheel ran over a small fresh mole hill, and in the soft dirt the tread showed it to be a 'Kelly-Springfield,' rather well worn. Where the other rear wheel cut into the road, there was about a foot of sign in the dust of the road and it was a smooth tire. But that was every bit of evidence I could dig up.

"After studying the thing over for a while, I decided to ride down to a little cross-roads store about ten miles below and see what I could learn down there. They told me several cars had come by that day and the day before, but nobody had noticed their tires, so that didn't get me nowhere.

"There was a kid there hanging round the place, and, as we talked about the cars, he butts in with, 'Say, did you notice the goat on the running-board of one car what went by here yesterday morning?'

"I come alive right there. 'A goat?' says I. 'Yep,' sez the kid; 'a white goat, with fine, silky hair.' 'In the car?' I asks. 'Nope,' sez he; 'goat's a ridin' on the running-board in a nice little cage built a purpose for

him. On the other running-board was a small bale of alfalfa hay, an' I seen a baby in the woman's lap.'

"I makes it out the goat's to furnish milk for the baby. Did you ever hear tell of such a trick as that in all your born days? Hauling a milk ranch along with you when you go campin'.

"Then I remembers them there white, silky hairs and that piece of cotton rope round the saplin', which I calculated was part of the rope for hangin' a hammock. Milk, goat, baby, hammock, sez I, to myself. What's



ON THE TRAIL. THE OLD-TIME TYPE OF FOREST RANGER, COWBOY, SHEPHERD, AND LUMBERJACK—A FAMILIAR SIGHT IN THE EARLY DAYS OF THE SERVICE AMONG THE BIG HILLS

the answer? Easy enough, sez I, when you find that car with the goat ridin' on the running-board and a baby on the seat and a hammock with a broken piece of white cotton rope in the dunnage you've got the *hombre* what caused that fire back yonder.

"Feller didn't mention his destination, did he, Kid?" I asked. 'Well, not exactly,' sez the kid. 'He did say he aimed to stop over on Snow Creek and see if the trout would bite. Mebbe he's there yet.'

"Fifteen minutes later I was on the road to Snow Creek. Sure enough the tracks of an auto turned out of the road and went down the creek, where there was a sort of a old wood road. 'Bout two miles down I finds him—goat, baby, and all—and, would you believe it, there was a hammock swingin' to a saplin' with one rope shorter than the other. It was white cotton rope at that. I lacked just one more bit of evidence.

"'How's the fishin'?' I sez. 'Fairly good,' he comes back, polite and nice.

"I gits out my pipe and loads it. 'Match?' sez I, actin' like I was plumb out of 'em. 'Sure,' sez he, and out comes one of them boxes of Swedish matches built like little candles. Then he pulls a bunch of 'Camels' from his shirt pocket. 'Thanks,' sez I, as we both lit up an' me figuring just how I was goin' to break the news to him. He was a doleful-lookin' fisherman when I finally told him he was under arrest for leavin' his camp fire burning and settin' the woods on fire. But he seen I had him dead to rights, so like a good sport he went back with me to the cross-roads store.

"Old Man Jones, the storekeeper, was justice of the peace, and after hearin' my side of the case and just how I come to run him down, the man decided he'd plead guilty rather than try to fight it. The old judge fined him \$75, which was about right, everything considered, and the case bein' closed, I went back to my station, and the man with his wife, baby, and goat went on his way a little poorer than when he started out, but a heap sight wiser about puttin' out camp fires up in the hills."

The Matrimonial Tree

By R. E. McNATT

MAN has discovered many uses for the beautiful trees that mother Nature has provided him with, but the young and romantic lovers of San Saba, Texas, come forward with a new use, as they have turned a large, spreading live-oak tree into a marriage altar.

This huge oak, which is commonly known as the "Matrimonial Altar," stands like a deserted giant in the

middle of the public road on the edge of San Saba. All its companions have gone down before the onrush of man, but in spite of the fact that this one stands in the road, its huge size and beauty, and the tradition that goes with it, have prevented it from the heavy swing of the woodman's ax.

Tradition in this part of the country has it that long before the white man invaded the valley brave and daring Indian warriors and shy Indian maidens who had been smitten by the arrows of little Dan Cupid stole from the wigwams and made love to each other under the boughs of this huge oak, while the moon sent its mystic and silvery rays down through the leaves.

Whether the Indian used the "Matrimonial Altar" to woo his future squaw is not known, but it is a well-known fact that some of the oldest and most prominent citizens of this section of the country were united for life while under the tree, and today lovers still seek the shady boughs of the spreading oak when they feel that they cannot live without each other. In the spring, especially in June, as many as three and four couples are sometimes married under the tree on one Sunday afternoon.



THE ROMANTIC TREE OF SAN SABA

What the Stork Brings

"The United States Department of Agriculture has put out a bulletin on bird preservation. About the same time a newspaper remarks, 'Protect the birds. The dove brings peace and the stork tax exemption.'"—*Lemhi Ranger*.



A SENTINEL CYPRESS ON THE MONTEREY DRIVE

The Age of Monterey Cypress

BY GEORGE B. SUDWORTH

THE longevity of the Monterey cypress, a relative of the Old World Cypress tree of the Egyptians and Romans, has been long a matter of conjecture. There has been little opportunity of determining the age of large trees, which are from fifty to seventy feet in height and from three to sometimes six feet in diameter. Fortunately, last year the long-looked-for opportunity came of learning something definite about the age of these trees through Mr. E. L. Guppy, of Pacific Grove, Monterey County, California.

The severe coastal storm of 1917 uprooted a number of medium and large-sized trees in the Cypress Point grove. As the trunks were being sawed into sections Mr. Guppy counted the stump rings of three trees, which respectively showed ages of 200, 250, and 300 years, the oldest tree having a trunk diameter of nearly six feet. Strangely enough, however, two other trees, of unusually straight, thrifty growth, showed respectively only fifty rings for a stump diameter of two feet, and seventy-five rings for a diameter of three feet. Evidently, the Monterey cypress grows very rapidly in easily permeable soil, the situations occupied by the latter trees, and much more



SUNSET GLOW AND PURPLE SHADOWS AND A LONE CYPRESS ON GUARD AT MIDWAY POINT



Photograph by Mark Daniels

MORNING ON THE COAST-LINE NEAR MONTEREY—AN ANCIENT CYPRESS AT THE WATER'S EDGE

slowly in rocky situations, the sites occupied by the older trees cited.

The Monterey cypress is one of several other California conifers that grow naturally over very limited areas. The range of Monterey cypress is confined to about two miles of California coast south of Monterey Bay, in a belt about 200 yards wide, extending from Cypress Point to Point Lobos. There seems to be no evidence that it ever occupied a larger range, although various conjectures are extant that it once grew in a wider coastal belt, part of which is now submerged.

It does not appear that it is in imminent danger of soon disappearing from its rocky and sandy habitat, for it is constantly reproducing itself from seed. Moreover, the tree is extensively cultivated on the Pacific coast from Washington to Lower California, while it is a familiar ornamental in European gardens, in mild climates of South America, and in Australia and New Zealand. Its ability to thrive away from the coast and at elevations up to 2,000 feet was tested nearly 20 years ago, in the San Bernardino Mountains, by T. P. Lukens, of Pasadena.

Of all of our true cypress trees, the Monterey cypress is doubtless the one best known, particularly by inhabitants and travelers in the Pacific Slope region. Very interesting also is the fact that of the seven species of cypress growing within our borders five of them are more or less confined in their geographic distribution to the Pacific Slope region, the other two species occurring only in central and southeastern Arizona. They are the Mon-

terey cypress, Gowen's cypress, Sargent's cypress, McNab's cypress, Tecate cypress, Arizona cypress, and Smooth cypress, the last two inhabiting mountainous sections of Arizona. None of the Pacific Slope cypresses grows naturally farther north than southwestern Oregon, where the McNab cypress occurs. One of these trees, the Tecate cypress, sometimes called the Guadeloupe cypress, which is of rather rare occurrence in southern California, extends southward into Mexico. All of our cypress trees vary greatly in their altitudinal range, two of them, the Monterey cypress and Gowen's cypress, growing at sea-level, while the others range up to from about 1,000 to 7,000 feet above sea-level. Owing to the highly ornamental value of cypress trees, the foliage of which is sometimes of a silvery hue, at least four of them have been introduced into European and English gardens, where in temperate climates they are successfully cultivated.

Our species of cypress (*Cupressus*) are of little commercial use, although the odorous wood is firm and durable. Some of them are locally used for fuel, fence-posts, and for house-logs. A log cabin known to the writer, which was built of Arizona cypress logs, was well-preserved for over forty years. Native cypress trees are very variable in their height and diameter growth, depending much upon whether they are growing in protected or exposed situations. As a rule, they are rarely over 75 feet in height and 6 feet in diameter, the Monterey cypress being the largest.

Woods That Lure Fish

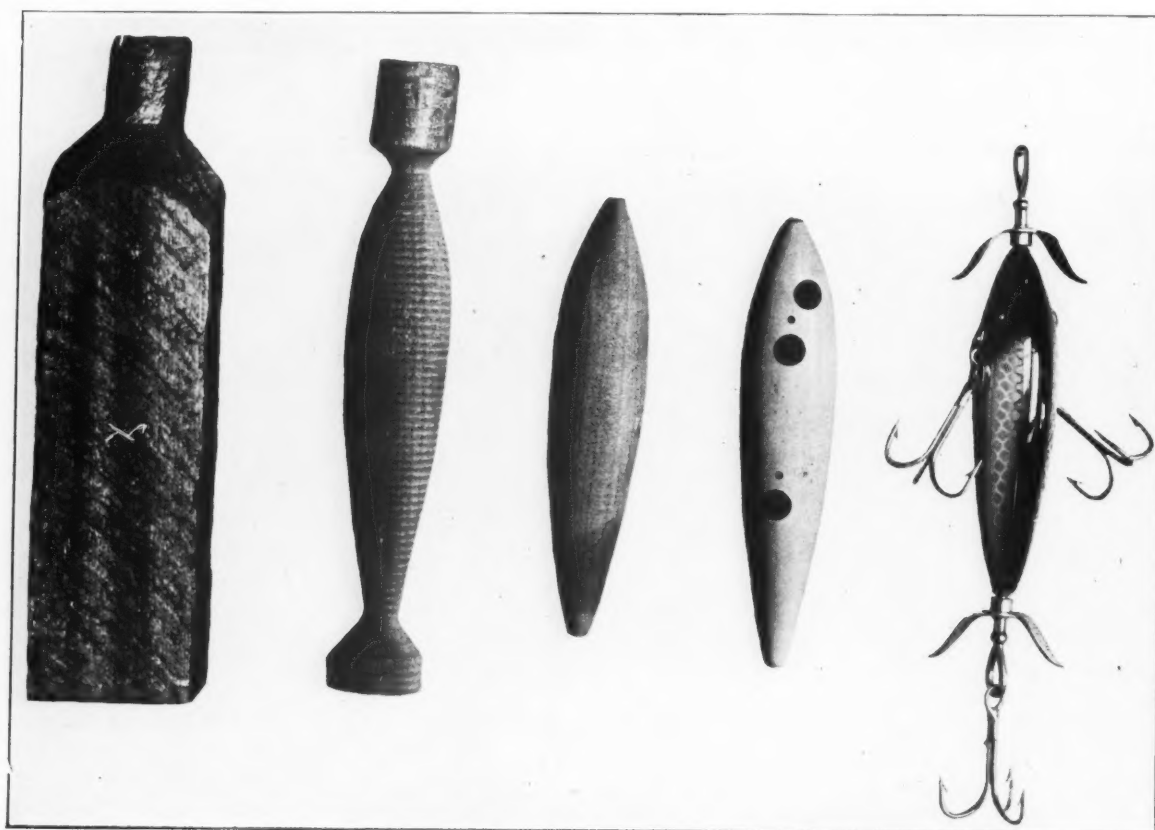
By HOWARD F. WEISS

DECEPTION is not all among the wicked. There is no field of clean, wholesome endeavor in which the art of deception has been carried to more clever and versatile lengths than in the gentle art of angling. Man matches wits with fish; sometimes he wins, more often he loses. But failure merely spurs the sportsman to renewed efforts of deception. Meanwhile his prospective captives go their under-water ways, serenely unconscious of the millions of highly developed brains and the thousands of skillful hands working to bring about their untimely ends by new and alluring strategies.

One of the most recent coming to my notice is United States patent No. 1,180,753, which thus describes a new "sure-winner" fish bait, made of wood with a mirror inserted in the body: "The mirror is an additional feature that insures the effectiveness of the bait in the following manner: A male fish, seeing his image upon looking therein, will appear to see another fish approach it from the opposite side with the intent to seize the bait, and this will not only arouse his warlike spirit, but also appeal to his greed, and he will seize the bait quickly in order to

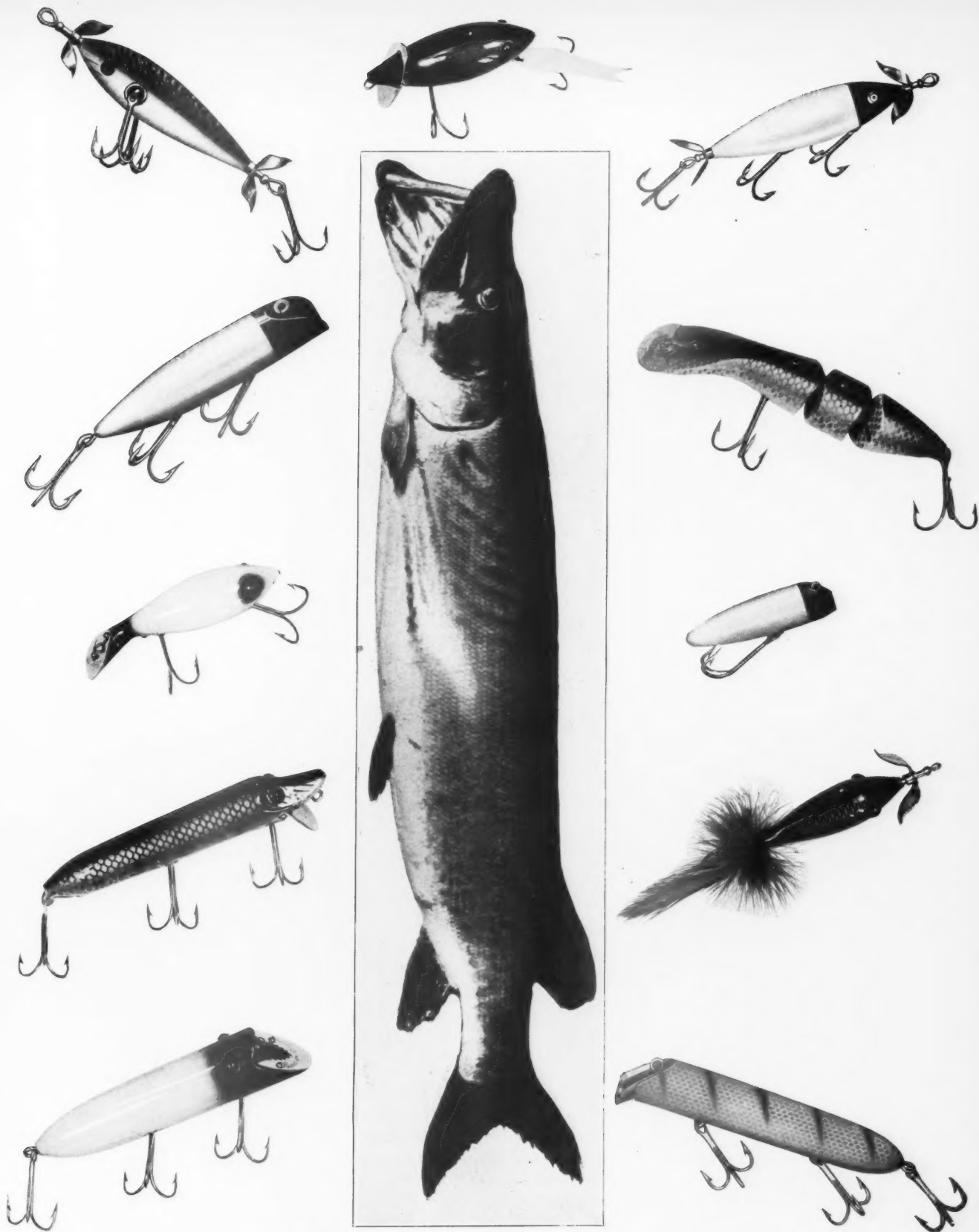
defeat the approaching rival. In case the fish is suspected of cowardice, I may make the mirror of convex form, in order that the rival or antagonist may appear to be smaller. In the case of a female fish, the attractiveness of a mirror is too well known to need discussion. Thus the bait appeals to the ruling passion of both sexes and renders it very certain and efficient in operation."

Does not this show keen and observing analysis, not only of the frailties of fish, but also of the genus homo? And could any paragraph better describe the versatile and gratifying artifice which marks the sporting attitude toward our underwater friends? Nor does the practice of deception limit itself with fine distinction to one end of the line only. It seems to have been legitimized as a righteous part of the sport of angling. The word of the fisherman, unsubstantiated by that of a goodly number of eyewitnesses, is a word to bring a knowing wink of the eye, upturned corners of the mouth, and undisguised but sympathetic incredulity on the part of the listeners. Exaggeration and deception, good-natured, of course, must have always played an intimate rôle in the art of



THE CYCLE FROM CRUDE WOOD TO FINISHED, GLEAMING BAIT

In the evolution of the glittering bait that lures the "poor fish" to his doom, five steps may be traced, covering its first form in the wooden block, through two stages of turning which bring it in shape for the application of the brilliant enamel, and then the final artistic color touches and the attachment of the deadly triple hooks.



IF YOU WERE A FISH, WHICH SHINY LURE WOULD PROVE YOUR UNDOING?

Many successful wooden baits have no real resemblance to a fish, except that they look more or less shiny. Some shine, or at least light color, seems necessary in all artificial baits. This furnishes the "flash" to which certain of the finny brethren eventually succumb.

fishing. Did not Mark Antony's infatuation for Cleopatra lead him to resort to the fisherman's art in his efforts to win her admiration? In the "Life of Mark Antony," in Plutarch's Lives, we read of him performing in this wise:

"It would be trifling without end to be particular in his follies, but his fishing must not be forgotten. He went out one day to angle with Cleopatra, and, being so unfortunate as to catch nothing in the presence of his mistress, he gave secret orders to the fishermen to dive under water and put fishes that had been already taken upon his hooks; and these he drew so fast that the Egyptian perceived it. But, feigning great admiration, she told everybody how dexterous Antony was, and invited them next day to come and see him again. So when a number of them had come on board the fishing-boats, as soon as he had let down his hook, one of her servants was beforehand with his divers, and fixed upon his hook a salted fish from Pontus. Antony, feeling his line give, drew up the prey, and when, as may be imagined, great laughter ensued, 'Leave,' said Cleopatra, 'the fishing-rod, General, to us poor sovereigns of Pharos and Canopus; your game is cities, provinces, and kingdoms.'"

But it is wooden baits with which this article is concerned. Little, indeed, did that sturdy old Michigan pioneer, William Tuttle, when he dragged his wooden bait with metal fins through the placid waters of Magician Lake more than 80 years ago, imagine that he was setting in motion the ripples of an industry which a generation later would bring employment to hundreds of people, joy to thousands of fishermen, and the frying-pan to millions of fish. From his idea, nevertheless, has sprung the great variety of attractive wooden fish baits which today lure not only the finny family, but the great brotherhood of disciples of Izaak Walton.

It is not so many years ago that artificial baits were limited largely to metal spoons, rubber minnows, grasshoppers, and divers bugs; but within recent years the

wooden baits have come upon the market in ever-growing quantity and variety. The manufacture of these wooden baits has, indeed, become an art worthy of the soul of the artist. Some of these lures are masterpieces of craftsmanship and artistic expression. Displayed in the street windows of sporting-goods shops, they invariably halt the rod-and-line devotees and thrill them with the great yearning. Men denied the means of indulging in the sport of fishing have been known to stand before these windows for hours, held by the fascinating sensations and phantom dreams which these bright and curious lures inspire. Perhaps, if the truth were known, as many fishermen are caught by the attractive baits now offered as are fish which bite at them. Where is the sportsman with the blood of old Izaak Walton in his veins that can pass a shop window displaying a veritable museum of these attractive baits without succumbing to the desire to add one more to his collection?

Wood for fish baits has certain properties that make it an ideal material. It can be easily worked and patterned into a variety of forms. It combines great strength with lightness, and it is susceptible to a beautiful finish, as it holds enamels and varnish very well. Especially to the tenderfoot angler does the floating quality of the wood particularly appeal; for who is there that does not get a "back lash" once in a while, and if the bait sinks to the bottom there is generally the deuce to pay.

Then the smooth, nicely balanced body, while resistant to bumps and knocks, offers a minimum of resistance to air friction, as it goes whirling on its cast. This makes long distances possible, even for the novice.

Red cedar is the wood most generally used, although other kinds of wood are employed, and notably, in the last few years, white cedar. The wood must combine lightness with strength, so that the hooks will not pull out. It should be water-resistant, have the proper buoyancy, and take a good finish.

A short time ago Miss A. E. Edwards, of the University



(Courtesy Mrs. C. B. Davis)

A TRUE "FISH TALE"

Documentary evidence of the luring, by a successful sportswoman, of a wary bass with a piece of red cedar!

of Wisconsin, made a study of the rate at which various woods absorbed water. She took air-dried pieces of wood, all heart wood, cut to one inch by one inch by twelve inches, and submerged them in water at 60 degrees Fahrenheit for 105 days and measured the amount of water absorbed. The results obtained were as follows, the values indicating the average daily absorption of water expressed in per cents of the original weight of the wood: Green heart, .23; black locust, .24; red gum, .31; yellow pine, .31; Douglas fir, .33; tamarack, .42; white oak, .42; Port Orford cedar, .62; Western hemlock, .53; birch, .54; Bigtree, .54; Western larch, .56; bald cypress, .59;

articles as food by receiving what might be called "chemical stimuli" from them. Such fish are particularly the bullheads and catfishes. They use their eyes but little, or not at all, for this purpose and cannot be caught on artificial wood baits, because they mean nothing to them. A piece of liver hung in the sun for a day or two is what attracts fishes of this kind.

Other fish recognize articles as food because they move and are about of the right size and appearance. In other words, they recognize food with their eyes, depending little or not at all on chemical stimuli. Hence they are dependent on living material and on that account are



A BIT OF LANDSCAPE BEAUTY IN THE SUPERIOR NATIONAL FOREST

This country is the happy hunting ground of the disciple of the rod and line, for in its myriad lakes are found the finny "fighting four"—bass, pike, pickerel, and muscalonge.

pin oak, .64; post oak, .78; Northern white cedar, .84; Western red cedar, .85; white pine, .98; red oak, 1.00; honey locust, 1.44; black walnut, 2.72.

This study would indicate that red gum—that much-despised tree a few years ago, but now through study made one of our most valuable forest woods—should make a good wood for fish bait. Red gum is strong, tough, and light in weight, and takes a beautiful enamel finish. Furthermore, the heart wood is quite durable and, as will be noted from the table, resistant to water absorption, so that the bait will not lose balance.

All fishermen have their favorite baits and swear by them through thick or thin, but perhaps a knowledge of the habits and haunts of fishes has more to do with success than anything else. Some fish, for example, recognize

strong, active, and attack their prey suddenly. Because of this they can be fooled by artificial baits, and these characteristics rank them as "game fishes."

An important fact in selecting the wooden bait is to have it conspicuous under the circumstances in which it is used. This will be affected by weather (sunshine or cloudiness), color of the water, degree of turbidity, color of the bottom, etc. The value of a bait with several contrasting colors lies in its meeting many conditions.

Some fishermen, and among them are experts, believe that fish may become so accustomed to seeing artificial bait dragged through the water that they refuse to be fooled and will not bite such bait. There is experimental evidence to show that fish will learn to shun food offered on a disc that gives them an electric shock and will learn

to recognize it by color. But this process of learning is a very slow one, and when the lessons are discontinued they are quickly forgotten. It is probably not possible for any fish in nature to learn this by experience with fish baits. It has happened often that trout fishermen lose hooks and then catch the same trout a few minutes afterwards on a new fly.

While many of the wooden lures are lifelike replicas of minnows and under-water life, many of them have no resemblance, either in form or coloring, to fish or anything that swims, crawls, or flies. Why, then, are the fish attracted to them? The answer appears to be in the word "flash," as explained in the following quotation from Francis Ward's book, "Animal Life Under Water":

"I will now describe the under-water appearance of lures that mainly depend upon 'flash' to make them attractive. Most pike water swarms with roach and rudd. The live bait of the pike angler is only one among many thousand of fish in the water, and yet the pike are attracted to the captive bait. 'Flash' is the explanation. The free fish in the water are swimming about on a level keel and are rendered inconspicuous by reflecting their surroundings. In consequence they do not arrest the attention of the pike. The captive bait, on the other hand, is constantly flashing in the water, as it twists and turns in its endeavor to escape. The pike is attracted and seizes the roach on the snap tackle.

"The spoon bait depends entirely upon 'flash' to attract fish. Most spoons, as supplied by tackle-makers, are made with far too extensive a flashing surface. Such spoons certainly attract the predatory pike or trout, but where the fish comes up to inspect, he follows for a time, and then falls back. The flash is unnatural and too bright.

"I have used a spoon made in the following manner, so as to imitate as far as possible the appearance of a damaged or sick fish: The whole spoon is painted dark green, except for a narrow strip of clear metal which runs diagonally across the convex side. This strip starts from a point at either end and is not more than a quarter of an inch wide in the center. The swivel ring is attached so that the spoon spins with a wobble. Seen from under the water, this spoon gives a quick flash, then a definite interval, followed by another quick flash."

Although the author does not specifically mention here wooden lures or plugs, it would appear that the flash principle applies to them with equal force. These baits are not only highly and richly colored, but they are made in forms which make them wiggle violently, or cut up other striking antics, as they move through the water, thus arousing the curiosity and, perhaps, the anger of the fish.

(Photographs by courtesy of the United States Forest Service, The South Bend Bait Company, James Heddons' Sons, and the Wisconsin Conservation Commission.)

Impressions from a Southern Journey

BY SENATOR CHARLES L. McNARY

LOOKING through a car window while riding through the southern states, or making observations from an automobile, one is distressed by the sight of monuments of vast areas of stumps that mark the places where formerly stood virgin forests. It was but natural that in time that scene would reach the nerve cells of the enterprising people of the South. The picture, though an ugly one, made itself felt, and now state officials, private owners of timber lands, and civic organizations are aroused over their rapidly disappearing pine forests.

In my judgment, this state of mind on the part of the people of the South will guarantee co-operation with the government in some plan of reforestation that would have been considered impossible a few years ago. Everywhere the special Senate Committee on Reforestation went, crowds of interested citizens attended the hearings and did everything possible to bring to the committee data, material, facts, and statistics that will be helpful in proposing legislation to the Congress.

The question of reforestation is an immediate one for the South because of the admitted fact that, unless new

crops of timber are grown under modern methods, in a period of time not in excess of three decades, one of its natural resources will have practically become exhausted. The owners of the pine forests in these states have done little to protect their trees against destruction by fire, and, indeed, but few of the states have taken advantage of

government co-operation offered in the Weeks Act. Because of the want of appreciation by many of the southern folk of the value of the forests, laws prohibiting stock running at large are not enforced, with the result that the forest lands are burned annually to insure a succulent crop of grass for cattle, thereby destroying young trees and the seeds necessary to insure reproduction of the forests. The razor-back hog runs at large and is a destructive agency of considerable im-

portance. To the glorious credit of the southern people, they realize the errors of the past in dealing with the forests and appear to be anxious that the government should take the lead in some uniform and practical policy of reforestation, and I predict that no section of the country will give more active support to this character of legislation than will the people living in the southern states.

DURING March the Senate Committee recently appointed to investigate the need for a National forest policy visited the South and held public hearings in Jacksonville and Pensacola, Florida; Hattiesburg and Gulfport, Mississippi, and New Orleans and Bogalusa, Louisiana. It did not confine itself to hearings. It went into the piney woods and the "cut-overs" and studied conditions on the ground. Upon its return to Washington, Senator McNary, chairman of the committee, summarized in this interesting statement his impressions of the forest situation in the South.

A State That Abandoned Its Forests

By TOM WALLACE

With photographs by Dr. Willard Rouse Jillson, State Geologist

KENTUCKY has been called the state that is first in self-esteem and forty-fifth in education. The phrase was turned in a discussion of schools. It may be applied, not unfairly, to the situation of Kentucky as the possessor of a vast heritage which now is vanishing by reason of neglect. The state hardly observes its loss.

Only economic illiteracy—again I am borrowing a phrase—makes possible the amazing and disheartening inattention of Kentucky to her loss, and explains the absence of any organized movement to attract the attention of Kentuckians to what is taking place; to awaken them to the necessity of taking stop-loss measures incalculably more valuable to the general welfare if taken now than if delayed.

Kentucky had originally 15,000 square miles of forest in a total area of 41,000 square miles. The development of the state was not rapid. The greater part of this natural wealth remained in the boyhood of men now living. Vast areas still stood in untouched virgin timber during my own boyhood, and I am not beyond the forties.

As a lad, in western Kentucky, I lived upon a farm which had 800 acres of virgin timber. This tract was surrounded by a boundless sea of forest foliage, with a "submarine" population of wild turkeys and smaller game. Nearly every farmhouse had a group of dependents in the form of stag hounds that had been used in the last chases of that section, a stack of wolf traps, now rusting in disuse, and a few long rifles of the "cap-and-ball" type—the squirrel-guns and deer-guns of the pioneer period which made Kentucky riflemen famous in more than one war.

The woodlands still swarmed with squirrels, the water still swarmed with ducks and geese. Log houses cost nothing but labor plus the price of locks and windowsash.

THE DAYS OF BIG TREES AND BIG MEN

Fuel was free. Fishing, in clear streams fed from watersheds lying deep in leaf loam, was good. Farming was encroaching upon the domain of the trees, but it then seemed too broad to be wholly invaded.

In boyhood I saw many "deadening" destined to become tilled fields, and many "clearings" in which gangs of men with hand-spikes rolled into piles logs which now would be worth \$100 each or more and burned them to make way for the plow. Recently I saw poplar boards, made from trunks inferior to those burned in many a clearing, sold in Louisville for more than the value of their weight in corn. I have seen one tree sold for more than twice the average value of an acre of ground where thousands of acres were cleared of trees to make room for tillage. Less timber was destroyed deliberately in clearings in the mountains than in the lowlands of Kentucky, for the reason that in the highlands the soil is less productive and farming is a smaller project. Long before coal and oil were developed in the Kentucky mountains, a popular saying of the natives was, "Only logs and liquor are cash."



A BEAUTY SPOT IN OLD KENTUCKY WHERE FINE FISHING HOLES MAY BE FOUND OR GOOD SQUIRREL HUNTING ENJOYED

The log slides, down mountains to creeks and rivers, brought timber to the "tide" and cash to the land-owner or the log pirate. The logs came from a natural arboretum which, after the lowlands were pretty well stripped of the original stand, seemed inexhaustible, at least to those who lived in the hills and whose mental



INVITINGLY SHADED BY NATURAL GROWTH. OVERHANGING LUXURIANT ROWS OF OSAGE-ORANGE TREES MAKE THE PADUCAH AND MEMPHIS HIGHWAY BETWEEN FULTON AND HICKMAN THE AUTOMOBILISTS' DELIGHT, EVEN IN THE HEAT OF THE MID-DAY SUN. KENTUCKY SHOULD HAVE A ROADSIDE TREE LAW, FOR IT WOULD BRING INTO EXISTENCE AN AVERAGE OF 1,000 MILES OF FOREST TREES IN EACH COUNTY, SHADING 500 MILES OF RURAL HIGHWAYS

horizon was the horizon that presented itself to the eye. Out of the mountains, down to the Cumberland, the Big Sandy, the two forks of the Kentucky River, and from many other streams came, as the mountains were called upon for their ancient store, a flow of sawlogs that covered the waters in freshet stages as the vegetation from equatorial Africa covers the Nile.

In the rich, dark soil of the western lowlands stood tulip poplars, often six feet in diameter, sometimes seven, in rare cases eight, with column-like trunks, blade-straight and without a limb for thirty or forty feet, their topmost tulips 200 feet from the bole. Among them stood oaks, of sundry varieties, looking old enough to have sheltered the Druids at their ancient rites, and "shellbark" hickories in whose skyscraping branches squirrels lying close on windy days presented a mark for riflemen at once enticing and difficult to hit. In the swampy "slough" lands along the river the valued cypress and the sycamore, then valueless, contended for space.

The timber of the mountains, still virgin after the rape of the lowlands, was somewhat less majestic than that of western Kentucky, but somewhat more varied, for here the conifers mingled their darker plumes with the green leaves of deciduous trees. If no trunk thrilled the beholder by its immensity, like the tulip poplars of the lowlands, the vastness and the beauty of the forest were impressive. Here the sea of foliage, gently rolling at the

other end of the State and in central Kentucky, seemed storm-tossed and shoreless.

MEMORIES OF OLD KENTUCKY

I have not gone back to western Kentucky for many years, preferring to remember it as it was when the strutting wild gobblers were heard in the woodlands, through the open windows, in any farmhouse, in early morning in spring, and when cowslips, lady slipper, Dutchman's breeches, larkspur, sweet William—a wilderness of flowers beneath a wilderness of trees—covered the ground, and where the fish could be seen taking the bait—or taking the small fish—in limpid waters unpolluted. But recently I toured the mountains from Tug River, on the West Virginia border, to Burkesville, on the Cumberland, in the western foothills, without seeing from a car window, from a mule's back, or from "shanks' mare," when footing it along the trail, a single acre of virgin forest, in regions from which little sawlogs still come in dribbles when the streams are red with the blood of eroded hills from which the timber has been cut and where farming has run a short course to bankruptcy.

Virgin timber is nowhere a necessity, but forest products are everywhere necessities, and a supply of timber near scenes of consumption, in this period of mounting freight costs and labor costs, is necessary to welfare. Pennsylvania learned that when the state got to the point

at which the mine-owners were importing the timber necessary in coal mining. Kentucky has learned nothing by the experience of other states or by the enlightenment of the world, if the state is to be judged by its inaction and by the apathy of the public when the state's embryonic, yet promising, forestry bureau was abolished. There was no general outcry, no prevalent objection, when a candidate for the office of governor in 1919 poked fun at state forestry. There was no evidence of popular disapproval when, in 1920, Governor Morrow, the man who had ridiculed forestry from the stump, sent to the legislature a message including this:

"The following officers are, and have been for several years, considered as needless and useless, and therefore should be abolished—The State Forester and the deputy foresters under him."

I believe the governor was accurate in his statement that the officers he mentioned were "considered" needless and useless. At any rate, there was no indicated objection, save upon the part of the *Courier-Journal*, and perhaps the *Lexington Leader*, even upon the part of the press, when the legislature passed, as an administration measure, fulfilling the economy pledges of a mountain candidate for the governorship in his campaign, a measure abolishing the Forestry Commission.



ROADSIDE TREES, THROUGH THE DEPLORABLE LACK OF A LAW IN KENTUCKY TO PROTECT THEM, AND NO PUBLIC SENTIMENT FOR SUCH A LAW, ARE WHOLLY NEGLECTED. POLE AND LINE COMPANIES HAVE PRUNED TO DEATH TREES WITHIN THE RIGHT OF WAY, WHILE OWNERS OF ABUTTING PROPERTY HAVE CUT THEIR LOCUSTS FOR POSTS AND LARGER TREES FOR SAWLOGS, LEAVING THE ROADS UNDER NO TIMBER BUT LINES OF TELEPHONE, TELEGRAPH, AND ELECTRIC LINE POLES, FLANKED BY AN OCCASIONAL STRETCH OF CRIMINALLY MUTILATED TREES

THE TRAGEDY OF POLITICAL DESERTION

Two years afterward, in response to a suggestion from James Speed, the Kentucky editor of the *Southern Agriculturist*, a Nashville publication, a protest against the abolition of forestry in Kentucky was signed by the Kentucky Commissioner of Agriculture, the President of the Louisville Board of Trade, the Chairman of the Agricultural Committee of the Kentucky Bankers Association.

These gentlemen said jointly that the action of the legislature in depriving Kentucky of the opportunity for procuring Federal aid to protect forest lands was tragical. At the present rate of destruction, the signers of the statement said, Kentucky soon would be without her valued wooded areas, subject to destructive floods, impoverished, robbed of what could be made playgrounds for generations yet unborn.

The *Courier-Journal*, the *Lexington Leader*, and the *Southern Agriculturist* published the statement and commended it. There was hardly an echo from the public or from the state press. Kentucky, with some 1,800 miles of navigable streams and with 12,000 miles of fishable streams, the greatest mileage of any state in the Union, affected injuriously by deforestation; with agriculture suffering in many ways from deforestation; with building materials prices rising, went on rifling her remaining timberlands, unconcerned.

Kentucky's backward step was taken when forestry was being instituted, or had been instituted, in the adjoining

states of Illinois, Indiana, Ohio, and Tennessee. The next legislature will convene in January, 1924. Doubtless a forestry bill will be introduced. If so, it will receive the support of at least a few newspapers and of the Federation of Women's Clubs. Whether there will be sufficient sentiment for forestry among the voters, to whom legislators are responsible, and responsive, remains to be seen.

The trouble in Kentucky is the ignorance of the backwoods plus the serene complacency of the Bluegrass, a section so praised and coddled that its natives find it hard to believe that it needs any sort of improvement. I say this in sorrow, not in anger, and as a Kentuckian, not as an outsider. My grandfather crossed the mountains from Virginia, along the wilderness trail, on horseback, and spent his middle age and declining years in western Kentucky, settling in that section because it had every charm of the unmarred wilderness. My grandmother was born in the Bluegrass, in Woodford County, which "Joe" Blackburn christened the asparagus bed of the garden spot of God's Country, and I look toward the Bluegrass as a Mohammedan prays with his face toward the Caaba.

A "HEAVEN" MARRED BY DEFORESTATION

A hotel clerk in Danville reflected popular sentiment when, in response to a question as to which of two routes to Paris presented the more attractive scenery—we were taking a Philadelphia guest through the Bluegrass coun-



AN INEXCUSABLE BUT COMMON CONDITION. THE REMOVAL OF THE TIMBER COVER FROM STEEP HILLSIDES INVITES THIS FARMING DISASTER, WHICH IS A GROWING MENACE IN MANY PARTS OF KENTUCKY, WHERE "THE STREAMS ARE RED WITH THE BLOOD OF ERODED HILLS FROM WHICH THE TIMBER HAS BEEN CUT, AND WHERE FARMING HAS RUN A SHORT COURSE TO BANKRUPTCY"

try—replied with evident conviction and genuine emotion, "Either will take you right through Heaven." As a matter of fact, deforestation has marred "Heaven" deplorably. The impermanent "woods pastures" have largely become treeless pastures or pastures in which a few old forest trees, long past maturity, are dying. No replanting has been done save about residences and along private roads from county roads to residences. Roadside tree-planting, with no law to protect trees and with no public sentiment for such a law, has been wholly neglected on public roads.

Pole and line companies have pruned to death trees within the right of way, while owners of abutting property have cut their locusts for posts and larger trees for sawlogs, leaving the roads under no timber but lines of telephone, telegraph, and electric line poles. A telephone company officer with whom I discussed the mutilation of roadside trees grinned and observed: "The written rule is to trim them back 18 inches from the wires, but our foremen regard it economy of time to trim them back 18 years." In reality they are trimmed back 100 years, as many trees a century old are killed outright by the pruners.

I was reminded of the Bluegrass region recently when reading a book from my grandfather's library, written 90 years ago by an Englishman traveling in America.

GOD MEANT IT TO BE BEAUTIFUL

Of New York the Englishman said:

"We drove through a finely undulating country, in which the glories of the ancient forest have been replaced by bare fields intersected by zigzag fences. God meant it to be beautiful when He gave such noble varieties of hill and plain, of wood and water; but man seemed determined it should be otherwise. No beauty which the ax could remove was suffered to remain; and wherever the tide of population reached, the havoc had been indiscriminate and unsparing."

Strike out zigzag fences, which the Englishman despised, but which nowadays, because of the rarity of rails, we admire as we do antique furniture; substitute wire

fences, and the description fits Kentucky: fits our boasted Bluegrass—a region endowed magnificently and ravaged recklessly.

Kentucky should have, in addition to forestry laws protecting her large area of cut-over lands from fire and designed to educate farmers to appreciation of the practical value of forestry as farm economy, a roadside-tree law. It would bring into existence an average of 1,000 miles of forest trees in each county, where they would shade 500 miles of rural highways. The trees would enhance property values, eliminate the major hardship of summer travel—the heat of sun smitten roads—and increase bird life, which, to the injury of agriculture, diminishes as farms are deforested.

The urgent economic importance of forestry to Kentucky is, of course, the chief reason why her neglect is reckless and shameful. But is the idea that abundance of fine trees affects culture a purely romantic one? Ruskin, discussing the North European, expresses an opinion which, if not convincing, is at least suggestive, when he says:

"The tremendous unity of the pine absorbs and molds the life of a race. The pine shadows rest upon a nation. The Northern peoples, century after century, lived under one or the other of two great powers, the pine and the sea, both infinite.

"They dwelt amidst the forests, as they wandered on the waves, and saw no end, nor any other horizon. Still the dark green trees, or the dark green waters, jagged the dawn with their fringe or their foam. And whatever elements of imagination, or of warrior strength, or of domestic justice, were brought down by the Norwegians or the Goths against the dissoluteness or degradation of Southern Europe were taught them under the green roofs and the wild penetralia of the pine."

A pleasing fancy. Is it more than fancy?

Kentucky bred statesmen in the days when Kentuckians rode statesmen under venerable oaks and between the trunks of giant tulip poplars.

Nowadays our politicians drive their automobiles be-



WHILE THESE OAKS ARE NOT "OLD ENOUGH TO HAVE SHELTERED THE DRUIDS AT THEIR ANCIENT RITES," THEY COULD BE AT THIS TIME PROFITABLY THINNED OUT FOR RAILROAD TIES, LEAVING THE BEST TO GROW UNDER STILL BETTER CONDITIONS FOR SAW-TIMBER

tween rows of telephone poles through deforested regions. And where are our statesmen?

Why is it that Kentucky's voice, once resonant and respected in the councils of the nation, does not, as formerly, challenge national attention?

Was Ruskin right?

Mark Leigh Alexander

THE cause of conservation has suffered an incalculable loss in the death of Mark Leigh Alexander, Commissioner of the Louisiana Department of Conservation. Mr. Alexander was 58 years old. He had been at the head of the Louisiana Department of Conservation since 1912. His death came as a shock to the entire state, as he had only been ill one week. On Saturday, March 10, he was taken with an attack of appendicitis. Physicians advised a speedy operation, from which he was unable to survive, and he died March 17.

Mr. Alexander was a Virginian by birth, and came from distinguished parentage, Mark Alexander, his father, having served as a member of Congress from Virginia for sixteen years, and his grandfather, Colonel James T. Alexander, of Mecklenburg County, served in the Revolutionary army. After the Civil War, Mr. Alexander went South, first settling at Mobile, Alabama, the home of his mother, who was Miss Fannie Ledyard, daughter of William J. Ledyard. Upon completing his education, he left Mobile and settled at Alexandria, Louisiana.

Mr. Alexander was appointed Commissioner of Conservation in 1912 by Governor Hall, and was reappointed by each succeeding executive, Governors Pleasant and Parker.

Mr. Alexander was regarded as one of the best conservation authorities in the South. His success as a conservationist was due to the natural diplomacy and sympathetic consideration for his fellows of every station. Trapper, hunter, fisherman, as well as fellow-conservationists, appreciated his efforts and were convinced of the ultimate benefit of the policies he advocated. Prosecutions under his administration were undertaken only where no other course was possible to check reckless waste or selfish slaughter of wild life. The result has been that the Department of Conservation is now receiving the support of the great mass of people of the state, and the waste of resources which threatened the extermination of wild life and the destruction of the forest and mineral resources has been greatly checked.

Mr. Alexander was one of less than a half dozen men chiefly responsible for the shaping of the present forestry laws of the State of Louisiana, including the provision whereby cut-over lands may be entered under contracts with the state for reforestation purposes and so benefit by considerable abatement of taxes while being used for growing another crop of trees.

Mr. Alexander was widely known and honored among foresters and lumbermen for his special interest in the problems of forestry, to which he gave much of his time and attention. The spirit of fairness, together with his recognized earnestness in the cause of progressive forestry from the standpoint of public interest, won for him high respect and friendship from the Louisiana lumbermen and was one of the most important factors in building up a strong interest on their part in practical measures of reforestation.

Mr. Alexander's work in conservation brought him a large measure of prominence throughout the country.



MARK LEIGH ALEXANDER

He was President of the International Association of Game and Fish Commissioners for Canada and the United States, a member of the Federal Advisory Board for the Protection of Migratory Game, Vice-President of American Fisheries Society, Vice-President of National Association of Shell Fish Commissioners, a member of the Executive Board of the National Conservation Congress, Vice-President of the American Forestry Association, Vice-President of the Louisiana Forestry Association, and a member of the Southern Forestry Congress.



EDITORIAL



FORESTS ARE THE MEASURE OF A NATION'S VIGOR

A Deadline for the Gipsy Moth

A DEADLINE is to be drawn against that nomadic Hun, the gipsy moth. The State of New York has just appropriated \$150,000 to be used to stop the invading hosts, which have been moving westward at the rate of 25 or 30 miles a year. A battle line extending from some point on Long Island Sound, northward to the Canadian border, and thence westward, if necessary, to Lake Ontario, is to be thrown up. This line will be almost 450 miles in length and about 20 miles in width. It will be a "no moth land," across which the gipsy ravagers shall not be allowed to pass.

Few people outside of New England, where it is now generally distributed, appreciate the destruction of trees wrought by the gipsy moth. Already it has cost the country more than \$20,000,000 for control work alone. In 1921 Massachusetts spent for control work more than \$836,000. It has been estimated that if the gipsy moth should be permitted to become general throughout New York, it would cost five and a quarter million dollars annually. The gipsy moth is the enemy of forests, old and young. With it abroad, it is practically impossible to grow many of the most valuable trees to timber size.

Twenty-six per cent of the red-oak trees in certain areas of Massachusetts have been killed by the moth during the past ten years. On Cape Cod 90 per cent of the oaks, representing 75 per cent of the forests, are either dead or in various stages of destruction. New York's control line, it is said, will be the largest immune zone in the history of forestry, and on its success depends the future of many forests, not only in New York, but in Pennsylvania and other adjoining states. In recognition of this fact, the National Government is throwing the full weight of the Federal moth-fighting forces into co-operating with New York.

New York's action in thus making available a large sum of money to stop the destructive gipsy moth is timely. No small credit is due the New York State Forestry Association for having secured this appropriation. Its expenditure will be of value, not alone to the State of New York. It will serve as a protection against the westward drift of the gipsy moth. It should inspire other states to be equally watchful and aggressive against this destructive pest.

From Old Forests to New

AMERICAN FORESTRY completes in this issue an exceedingly keen and interesting analysis of the transition of the United States from a free and easy exploitation of stored-up virgin timber to a forced and provident growing of wood as a staple crop, by E. T. Allen, Forester of the Western Forestry and Conservation Association. Mr. Allen's comprehensive articles are a significant contribution to a subject which more and more is engrossing the thought of the timberland owner as well as the every-day citizen who appreciates our forest-supply problem.

While pointing out the place which forests hold in the traditions and sentiment of the American people, Mr. Allen deals with timber-growing almost solely as an economic process, and maps out its future development primarily as an equation of supply and demand—a commercial reaction to opportunities for the profitable use of land. This viewpoint is supported by the extent to which the commercial growing of timber is already practiced in the northeastern states, to which Mr. Allen does rather scant justice. The very economic factors which the western timberland owners are beginning to visualize are creating stumpage values which have already made timber-growing a profitable business by many eastern land-owners.

As a purely economic question, however, the growing of timber has a public phase no less important than its interest to the land-owner. The timber famine is here, in the parts of the United States where the bulk of our lumber cut is consumed. The westward movement of the sawmills, which Mr. Allen describes with the interest of an epic poem about the deeds of ancient heroes, has created lumber prices in the larger eastern consuming regions which already have curtailed the per capita consumption of lumber, which today are leaving a large demand for wood unsatisfied, and which have brought bad reactions in housing conditions, standards of living, and industrial instability. Purely as an economic question, the consuming public has a vital interest at stake and is entitled to its stack of chips in the game.

While somewhat exaggerating the past dissensions between lumbermen and conservationists, as AMERICAN FORESTRY views it, Mr. Allen rightly emphasizes the need for co-operation between the land-owners and the representatives of public interest in obtaining a constructive solution. The solution ought to be a co-operative one.

The real question is, What can and should the public do to aid the sluggish movement of economic forces, which at best will but slowly, and for a long time inadequately, alleviate a national situation already grave?

AMERICAN FORESTRY is in hearty accord with Mr. Allen on the wisdom, as an immediate step, of the program advocated by the Forest Service and set forth in the Clarke bill. The main points of this program are fire protection, tax adjustments, education, and the extension of public forest ownership. Doubtless they represent as large a program of public and co-operative effort as will admit of sound progress for several years to come. Public forest ownership must blaze the trail and set the pace. Educational effort can vastly stimulate and intelligently

direct both the growing of timber and its more efficient use. Public co-operation in fire protection and tax adjustments will go far in removing two of the chief obstacles to general reforestation.

While we agree with Mr. Allen on the uncertainties of prophecy, AMERICAN FORESTRY is not prepared to say that the public should rest on its oars after this much has been done. The ultimate solution must be one that meets the clear necessities of the common welfare.

Connecticut Is Waking Up

AFTER 20 years of hesitation, the Connecticut legislature has at last passed a very satisfactory act "concerning protection from fires caused by locomotives." This act provides for the designation of danger areas along railroads, and where considered necessary by the Public Utilities Commission, on the recommendation of the State Forest Fire Warden, will require railroads to clear their rights of way, build fire lines, and put on an efficient patrol.

The fire-line provision is, perhaps, in advance of legislation secured in other states, since it provides: "The commission may also, with the consent of any owner or owners of land bordering upon such right of way, require such railroad company to plow a fire line on the land of such owner or owners, said line not to exceed ten feet in width and to be located not more than two hundred feet from the nearest track of such railroad, or to clear the brush and inflammable material from a strip of land whose outer limit shall be not more than two hundred feet from such nearest track."

This legislation is but one of numerous evidences of the beginning of an era of real forest progress in Connecticut. Although there has been a forestry association and a forester in Connecticut for more than two decades, the positive accomplishments in the forest have not been what should be expected of that state. There is today a state forester and forest fire warden, with headquarters at Hartford. Two bills for increased appropriations for forest-fire protection and for the purchase of state forests

have been before the present legislature. There is also a trained forester attached to the staff of the Agricultural Experiment Station at New Haven, who is charged with the forest research work of the state and with the work of blister-rust control. The Connecticut Forestry Association, with some 550 members, has recently employed a paid secretary.

There is much work to be done in Connecticut. Although the state now owns about eight thousand acres of public forest, after 20 years of agitation, it needs one or two hundred thousand acres of timber-producing land to grow timber and to demonstrate forestry to private owners. Connecticut needs a much more effective fire protective organization, with inspectors and with at least a small year-long personnel. Connecticut also needs a real forest experiment station, to solve the many silvicultural problems that must be answered before the private owner will make forest investments. Under present conditions, the Connecticut Agricultural Experiment Station is handicapped in its research, because the forester has so many duties connected with the State Park Commission and the actual work of blister-rust control.

The Connecticut Forestry Association, with an aggressive paid secretary, must do a great deal to introduce forestry to the schools of the state. The propaganda must begin from the ground up and permeate to every corner of the state.

By the time the next legislature convenes in 1925, a model taxation bill should be ready for presentation.

The Lumbermen's Opportunity

IT is the lumbermen's move. They have been requested to draft a bill incorporating their ideas of the form which national forest legislation should take. The request comes from the special Senate committee now investigating the urgency of our forest needs. It was made during a recent hearing before the committee in Washington, when Mr. Wilson Compton, Secretary of the National Lumber Manufacturers Association, outlined the views of the lumber industry as to the major factors in the problem of reforestation. Although Mr. Compton explained that representatives of the industry had been consulted in the drafting of both the Snell and Clarke bills, Chairman McNary stated that the committee

would like to have before it a bill that expresses exactly the forestry ideas of lumbermen familiar with the needs of the lumber and wood-using industries.

Needless to say, the lumbermen's bill will be looked forward to with keen interest. Lumbermen are frequently criticized for not taking a more definite and aggressive stand on questions of forest replacement, particularly that of a National Forest Policy. They are sometimes charged with being obstructionists in the path of forest progress. That is not a unanimous view, but it exists in some quarters, nevertheless. Unfortunately for the industry and for forest progress, the old lumber-trust idea has by no means been dispelled. The public is not

yet sure where the lumber industry stands. The Senate committee's investigation is the lumbermen's opportunity. It is to be hoped that they will meet it and will come forward with a definite and constructive program, which will

let the public know where and how they stand, and which will be a contribution to the cause of American forests worthy of the great industry which American forests have created.

The Ghost of Light Burning

PIUTE forestry has failed to prove its case. It has done more. It has shown itself as great a failure in modern progress as the Indian standards of agriculture and stock-raising. By Piute forestry, we refer to the practice of light burning annually the western woods, claimed to have been originated by the Indians as a means of preventing periodical holocausts. It will be recalled that during recent years this practice of light burning the yellow pine woods has been revived by certain land-owners and others and put forward as the most practical method of solving the forest fire problem in the yellow pine forests of California and Oregon. For several years intense controversy has centered around this contention, the advocates of which claimed that light burning of the woods, done under favorable circumstances, would do little or no damage to living trees, that its intensity depends upon the inflammable debris accumulated in the woods, and that complete prevention of fire is impracticable.

Three years ago a temporary truce in the controversy was declared, until a joint committee could make a scientific study of the merits of the conflicting contentions.

This committee consisted of representatives of the Pine and Redwood Manufacturing Associations, the University of California Forest School, the State Board of Forestry, the Southern Pacific Railroad, and the United States Forest Service. After three years of study this committee has now made its report, which seems so conclusive as to lay the ghost of light burning to rest for all time to come. It found that light burning, whether done in the spring, summer, or fall, is impracticable for one reason or another. It did not locate any burns, however light, which failed to do some damage either to reproduction or to mature timber. In short, the committee, after three years of study, was not able to find or to work out a fire protective method based upon firing the woods, which is more practicable and economic than that now practiced in the National Forests.

Supporters of the theory of light burning now admit, it is claimed, that the theory is wrong and that the issue may be transferred to the closed file. All of which proves once more that we cannot raise timber with a flaming torch.

Mr. Alexander's Successor?

MARK LEIGH ALEXANDER, for eleven years Commissioner of Conservation of the State of Louisiana, died in New Orleans on March 18. In him forestry lost an able and enthusiastic advocate. Mr. Alexander rendered the cause of forest conservation generous service during the latter years of his administration. Louisiana's reputation among the southern states as a progressive advocate of forestry rests in no small measure on his efforts.

As Commissioner of Conservation, Mr. Alexander presided over the conservation of five important resources: oysters, fish, game, minerals, and forests. Of these the annual value of the minerals alone is comparable to the annual value of the products of the forests, and the latter value easily exceeds the combined value of the four lesser resources. The mineral resources, which at the present time are chiefly oil, gas, and sulphur, are of course non-renewable, while the forest resources can, if rightly handled by their owners under equitable laws, be made indefinitely productive. The overshadowing importance of forest conservation was clearly expressed by Commissioner Alexander in more than one public speech during the last year of his administration.

Great interest attaches to Mr. Alexander's successor. Will he be a man with Mr. Alexander's broad perspective, who recognizes that the most important and most permanently fruitful branch of his work is forest conservation?

Or will he be a man whose primary interest is in oysters, or game, or fish, or minerals? And if so, is not forestry in danger of the same eclipse from which it has so often suffered in the United States? That eclipse occurs when forest administration is bound up with the administration of resources for which it is comparatively easy to secure large funds, and which for that reason assume in the public and the politicians' eyes an importance entirely out of proportion to its benefits. An annual budget of \$86,000 for game conservation from hunting licenses may not be a cent too much, but certainly \$60,000 for forestry is very much too little on a comparative basis. Yet these are the sums available in Louisiana for the purposes named.

The lumbermen of the United States have been attacked in times past for many deeds for which they were not primarily responsible. One charge can be fairly laid at their door in recent years, and in fact has been laid there by the more far-sighted of their own number. This is the failure of so many of them to interest themselves in a constructive way in forestry matters, particularly the administration of the forestry laws of the various states. It remains to be seen whether the Louisiana lumbermen will bestir themselves vigorously in behalf of the appointment of a Commissioner of Conservation who will give forest resources their rightful place in the state's conservation work.

"I, Slim Spruce"

BY CLAY PERRY



I AM Slim Spruce, lineal descendant of the Great King Spruce.

Long ago my father told me I was born for a noble destiny.

Born and reared amidst the majestic company of my royal kin, my proud crest waves high above my neighbors, Jack Hemlock, Tom Tamarack, Billy Balsam, Pete Poplar, and even burly Prince Pine. It had done so for half a century. At my feet flows the Roaring River, monarch of streams, dashing down from the royal monarch of mountains, old Sprucetop, kingdom and throne of my royal line.

For centuries the Spruce family has reigned in the Kingdom of Forest, undisturbed, ever rearing proud crests above lesser brethren, aspiring high to a Place in the Sun—and reaching it—growing straight, slim, and tall, but never at the expense of strength. Our fibrous bodies are firm and well knit, supple and tough; nor at the expense of beauty and grace. Our rounded branches are adorned with a fine fringe of royal green.

With tenacious feet digging deep into rich forest mold, product of weaker families that have yielded to the fierce attack of Storm or insidious decay of Time, roots reaching cunningly down to the subsoil and to drink of the sweet, life-giving elixir, water, to flood our veins with sap of life, we have grown high, with graceful, tapering trunks, fine-arched limbs, nodding plumes and tassels.

Comes Man, the laborer, the thinker, the giant ant of industry. He takes away Prince Pine and his brothers, and his body is sawed and split and smoothed to make planks and boards for building bridges, mills—ignoble use, indeed, for a noble family; but we, scions of King Spruce, know that such fate is not for us. Something finer, nobler is our destiny.

Jack Hemlock next is taken by Man to make huge timbers to build a dam that checks the royal rage of Roaring River and directs him through sluices and into dark tunnels, where he is forced to labor, turning wheels and spinning snarling saws. Ah, the Saws!

We of the Spruce Line feel the sullen recoil of Roaring River, as he strives to withdraw from these slavish uses. His back rises like that of an angry mountain lion—higher, higher. We feel it on our feet, rising; but now he yields and sinks low, submissive, giving his heart's blood for the work of the world of Man. He has found his destiny.

Then all is done; the mills are builded. Man brings his hordes into the very heart of the domain of King Spruce. He builds cabins, shacks, stables; fetches horses, belching engines, many tools of steel. We shudder in all our limbs, but, stoical, stand firm, apparently indifferent to this threat.

Then one day, when Snow buries deep the forest floor, Men come and attack our unbroken, serried ranks, and we fall—by the dozens, the hundreds, we fall, crashing with majestic thunder, to the ground, bearing with us in our fall lesser trees, and now and then we pin beneath our great bodies the puny Men who attack us.

Steel bites our firm boles and hacks holes and our hold weakens.

We fall. More weapons of steel decapitate us, hew off our limbs, denude us of all save our clothing of bark. But our bodies hold together, fibrous, tough, despite mutilation, for we know that a noble destiny is ours.

I, SLIM SPRUCE, lie amid my brethren in great piles Men call Logs. Our sap is congealed, frozen. Then comes the Sprite Spring, with magic breath, and releases the bonds of the river and softens our stiff bodies, still alive, resilient, resistant. Man tumbles us into the river. The Roaring Monarch is to bear us to his place of confinement and labor, as he did Jack Hemlock and Prince Pine. Long before I come to the place called The Mills, I hear the savage snarl of the Saws, a man-made beast.

Some of my brothers cry out, in water-soaked voices, but I hold my peace, secure in my belief in destiny. Man harries and stabs us with hooks and pikes, as they hurry us down stream and drag us out and pile us on cars that run on steel tracks—royal carriage for a royal line.

Sound of the Saws, roaring with metallic hunger, rings in our ears. We are dumped on a carriage fashioned of the body of Jack Hemlock! Then, with exquisite, tearing pain, the teeth rip flesh and cut through me; and now I become less an entity than a confusion of particles, yet retain the unity of those strong, fibrous muscles.

Yes, even beneath the driving, splitting crash of steel machines that tear us apart, rip our skin, sharp knives that mangle and macerate, we keep our unity. We are of the royal line. Fiery smells speak of hot torture, and soon

we are being cooked in a caldron, in biting chemicals, until our bodies are a soft mass—pulp, they call it, these Men. It is our fibers, clinging, intact!

Out of the caldron we come; enter vats; are beaten, pounded, mangled, and bitten by more chemicals, that turn us pale; but we cling together, invincible, unconquerable, save by Fire, alive. Between rolls of wood that squeeze from us our life blood, but also rid us of stinking chemicals, lo, we emerge, a beautiful, soft sheet of white!

DRY Pulp, Men call us. With careless, irreverent hands they bend and fold us and on trucks send us to another mill; and then again the vats, the biting chemicals, the squeezing rolls; and thus are we doubly refined; and still we cling tenaciously to life, and again become a long white sheet; but now Men speak no longer of us as Pulp. They use another name, with tones of deep respect and admiration, and I know my destiny is being fulfilled.

Paper, they call us now—White Paper, News Print. They speak of "the splendid fibers of King Spruce"; how tough and smooth is the texture of the great white log into which our fibers, all straightened, bleached, and pressed flat, are being wound—a white log as large as my majestic trunk as it stood in the forest!

I, Slim Spruce, have become White Paper, News Print; and here you have me, with my life history written upon my own tough, living fibers, and my noble destiny is fulfilled.





EXPLORING GLACIERS IN THE

Story of a Trip into the Heart and Most Inaccessible Regions of

MIDWAY between Yellowstone National Park and South Pass, through which the early pioneers toiling westward blazed the overland trail to the Pacific, the Wind River Range of the Rocky Mountains flings up its rugged crest to form the two highest peaks in the State of Wyoming. They are Fremont and Gannett, both of which are over 13,700 feet in elevation. On their eastern flanks are glaciers, perpetual snow-fields, and deep canyons separated by ice-scored ridges. Swift-flowing streams, colored in midsummer with the soft greens of glacial flour, emerge from all the valleys. For almost one hundred miles these Wind River Mountains, extending southeastwardly from the Yellowstone National Park, form one of the highest and most inaccessible ranges of the Rockies. Its crest seldom drops below 11,000 feet in elevation and many of its peaks reach well above 13,000 feet.

Here is a man's country—a country so rough and impenetrable that it has baffled many a hardy explorer and pioneer. During the immigrant days it became a sort of backwater, into which settlers drifted very slowly, haphazardly or not at all. To this day it has so remained. It is one of the thinnest populated regions in the United States. The mountains are as wild as always, as inaccessible as when Bonneville and Fremont found them, nearly a century ago. To visit their canyons, lakes, glaciers, and peaks is to share a good deal of the difficulties and impressions of those early explorers.

The higher summits of the range are within the Washakie and Bridger National Forests, but because of the ruggedness and inaccessibility of the region it is practically without administration. Few have ventured into the fast-

nesses of this far country and they have been only the most hardy and venturesome.

There are no trails for the ranger, and even the stockman, ever on the search for new ranges for his herds, has not ventured further than the first uplift. Occasionally a few Indians from the Shoshone Reservation, to the eastward, drift into portions of this high back country in the short summer months.

During the summer of 1922 Forest Ranger H. N. Kleiber, of the Washakie National Forest, with a party of companions, set out to explore the mountains and glaciers at the head of Bull Lake Creek. "The roughest part of the region—from Jakey's Fork on the north to Mount Chauvenet and Mount Bonneville on the south—is practically unknown, except possibly to a few Indians," writes Mr. Kleiber. "And the roughest portion of this rough area is probably at the head of Bull Lake Creek, where it is believed the largest glaciers of the region are grouped, between Mount Helen and Fremont Peak. It was my good fortune last summer to be a member of a small party outfitted by the Lander Commercial Club under the direction of Mr. E. H. Fourte, an old resident of Fremont County. The purpose of the expedition was to make a rough reconnaissance of the glaciers at the head of Bull Lake Creek and to verify, if possible, some of the reports which for years had been passed around locally, hearsay fashion, as to the wonders and mysteries of this high unknown country.

"As far as any trail routes into the Bull Lake country



THE WIND RIVER MOUNTAINS

Heart of One of the Roughest Regions of the Rocky Mountains

located three very large glaciers that discharge their waters through a canyon of unusual proportions. We found lakes, waterfalls, and many other remarkable features, surrounded by an Alpine region that is so unique and imposing as to stand out by itself as a scenic wonder of the West, but it is a difficult country of access and the building of trails into it will be expensive.

"I do not think that any one has visited the Milky Lakes or approached the glaciers from below, within recent times, at least. I figure that no white man can make a trip into this country and not leave some tangible evidence of his having been there, because the routes of travel are so limited and difficult that several days must be taken for the trip. We saw no ax-cuts, the remains of old fires or camps, though I did find some old evidences of Indians.

"Our party merely skimmed the country. Some of its members had too little time at their disposal to explore extensively. This was a very serious drawback. We merely followed what, after a hasty survey, looked like the quickest and most logical route to the glaciers and noted the most outstanding features. We did not penetrate the south glacier for over a half mile. Its limits were beyond our vision. Of the main glacier we could not even see the snout and probably never got closer than within a mile of it. None of the surrounding peaks were climbed and there is no record showing that they have ever been scaled. Many of them have no names. But the

are concerned, after having been there, I can say nothing encouraging. Our party

story of our exploration is, perhaps, best told by notes taken from the diary of my trip.

"August 23—We arrived at the JK Ranch, fifty miles from the railroad at Lander, by automobile, and at once began to make arrangements for saddle and pack horses and to assemble and cargo our provisions.

"August 24—With the assistance of the packers and guide, we assembled the horses, about thirty of them, and drove them to the Kirkland cow camp on Little Willow Creek, some ten miles above the ranch, where we spent the afternoon selecting the horses, arranging the packs, and planning the exact details and route of the trip.

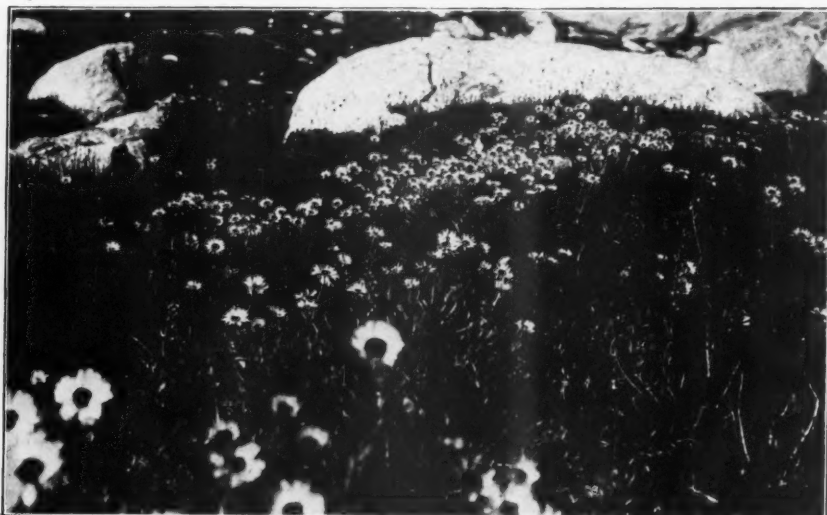
"August 25—The morning broke clear and cool. Considerable trouble was experienced in packing the stock, and one horse scattered his pack over a mile of sagebrush, just as we were about to start. We left the cow camp at 9 o'clock. As most of the horses were strange, the cavalcade did a lot of milling around, and progress ahead was very slow. Five miles up the first slope the pack-horse loaded with the photographic paraphernalia became unruly and ditched most of his load. It looked serious, but on gathering up the equipment it was found that no damage had been done. At 2 in the afternoon we arrived at the summit of the first uplift, an elevation of some 10,000 feet, margined by a rim-rock of Bighorn Limestone. The climbing so far had been steady and steep, but not rough. The narrowness of the trail which we struck in the timber halfway up proved hard on the packs.

"We now struck out in a westerly direction over a low ridge. Cambrian rocks were everywhere exposed and broken up into small, sharp fragments and forced the horses to proceed at a snail's pace, as they carefully picked

their way. The trail had vanished. A scrubby stand of limber and lodgepole pine, in places burned over, projected stubby fingers that tore at packs and added to the difficulty of trailing along a big string of pack-horses. Soon we encountered the granite, which continued as the country rock. The going became better, in spite of burned and fallen timber, and we passed a rude, sizable shelter made out of small trees and stacked limbs. The guide told us that this hut had been built years ago by the Indians, when they used to come up in the fall after limber pine



Photograph by Sanford Mills
MILKY LAKE AND ITS ROUGH SETTING, NEAR THE HEAD OF BULL LAKE CREEK



Photograph by Sanford Mills
MASSES OF ALPINE FLOWERS, GROWING NEAR THE GLACIERS AT 11,000 FEET, RICHLY COLORED MANY SLOPES

seed, which they gathered as a supply for winter food.

"About 4 o'clock we entered a big grassy park located on the head of a small tributary of Bull Lake Creek flowing off to the south. Since no member of the party was acquainted with the country further on and the meadow offered abundant horse feed, we decided to camp for the night near a convenient spring of icy water. A thunderstorm growling overhead hastened the preparations for the night. After a hasty supper I told the others that I would scout ahead on foot and try to determine a trail to be

followed the next day. Two miles brought me to the upper limit of the timber and to the top of the divide between Bull Lake and Meadow creeks. But a similar distance beyond high, bare ridges shut off the view to the west; so I climbed them, to find still higher ridges beyond, and I gave up the attempt for the time being, returning to camp after dark, but blazing a faint trail through the timber as I went. We had made only ten miles this day, but it had been sufficiently full and tiring to all of the party who were unaccustomed to horseback travel.

"August 25—Another clear



Photograph by Sanford Mills
LOOKING DOWN INTO THE NORTH FORK OF BULL LAKE CREEK, SOME OF THE ROUGHEST COUNTRY IN THE WIND RIVER MOUNTAINS



Photograph by Sanford Mills

RANGER KLEIBER AND THE PHOTOGRAPHER TAKING PICTURES ON THE SOUTH GLACIER

and willows caused a lot of milling around before the party, well strung out, reached the low ridge on the further side and turned west once more along the Meadow Creek side of the divide. Obstacles to fast progress of all kinds were met—boulders, gravelly ridges, glacial debris, small rock-slides—and winding about with the pack-train was tedious and slow.

"Many stops to untangle the horses were necessary, and the idle members of the party used them to examine the Alpine flora, which at this altitude, nearly 11,000 feet, had just passed its period of greatest

morning and so cold that ice had formed overnight in the water-buckets and around the margin of the spring. We were on our way by half-past eight. The first two miles through the timber to the top of Meadow Creek Divide proved very rough, the pack animals scattered on us, and we did not strike the trail blazed out the night before until we were almost on top. Many bear signs were seen in the limber pine belt. Crossing the divide at timber-line, we struck out northwesterly across a broad swale filled with dense thickets of Arctic willows. Bog-holes, concealed boulders,



Photograph by Sanford Mills

A MORE DISTANT VIEW OF THE SOUTH GLACIER, WHICH THE PARTY REACHED WITH MUCH DIFFICULTY



Photograph by Sanford Mills

THE NORTH FORK OF BULL LAKE CREEK, NEAR WHERE TWO GLACIAL TORRENTS UNITE

bloom. Some of the higher slopes were still full of riotous masses of purple daisies, paint brushes, primroses, kings crown, and gentians. A pale-green flowering gentian, growing in clusters among the rocks, proved of unusual interest. A few especially gorgeous patches of it were photographed. Toward 3 o'clock the party reached a saddle in the divide between Bull Lake and Meadow creeks, and ascending the further slope to the top, the first full view of the Bull Lake glaciers broke on our sight. All were deeply impressed and paused as long as

possible to drink it in. The scene possesses all of the charm that boldness of outline, distance, transparency of atmosphere, breadth and color can possibly bestow on any landscape. The ice-fields extend for miles along the crest of the Divide and, glistening in the afternoon sunshine, form the crown jewels of an immense and awful panorama that is the heart of the Wind River Mountains.

"We had gone this day about as far as tired horseflesh could carry us, and, slowly leading the weary pack animals down, we looked for a camp site in several small swales on the rim of Bull Lake Canyon, where we found firewood and could pack up water from a near-by rocky gulch. Abundant horsefeed for a several days' stop was afforded, and the remainder of the party was signaled to descend to the canyon rim, just at timber-line, and camp was made close to the very edge, looking down into Milky Lake, at the very bottom of the gorge.

"After a bite of supper and a study of the Geological Survey sheets, I determined to explore a little, to see if the ridge from which we had obtained our first view would not lead us westward and up to the main Divide, on whose east slopes the glaciers lay. Apparently, this ridge, the divide between the headwaters of Bull Lake, Dinwoody, Dry, and Meadow creeks, was continuous, and, if so, would provide our route for the next day, as the Bull Lake Canyon floor was patently impossible for horse travel. Crossing the ridge above the cirque at the head of Meadow Creek at 12,740 feet elevation, the going proved to be very slow. Immense boulders, rock-slides, and snow impeded progress, and all vegetation was absent; yet in passing over a rock-slide I stampeded a band of

mountain sheep, which took off at top speed toward Dry Creek.

"The ridge so far had held out very well, but approaching the point on the Survey sheet named Indian Pass further progress upwards became impossible. The divide narrowed and the 'Pass' consisted of a steep gash in the rocks, almost straight-walled and 500 feet deep, gnawed out by the streams that head against both sides.

Disappointed, I turned to the view for consolation. On the right towered the Chimney Rocks, on the head of Dry Creek, and their 13,000 feet of crags just hid from me the top and upper slopes of Gannett Peak, the highest mountain in Wyoming. The sun was just below the horizon and the dusky gloom, every minute growing deeper, mysteriously veiled the tremendous outlines of noonday. The Bull Lake glaciers lie to the south, and in the evening light their fields spread out like an immense fingered hand. Huge torrents, gushing forth from the glacial snouts, appeared as tiny threads of white, gradually darkening as they enter the gloom of the gray canyon walls and the timbered shores of the creek swallow them up; but the distant roar



Photograph by A. C. Tate

OUR CAMP IN UPPER DINWOODY CANYON, TWO MILES BELOW GANNETT GLACIER

of the main stream came faintly up to me on the evening breeze. Farther south the horizon, backed by the crest of Fremont's Peak, is a mass of snow-flaked summits.

"I picked up an arrow-head, which some dusky warrior in times gone by had doubtless shot at a mountain sheep, and again returned to the view. But night was falling, and, retracing my steps to camp, I found the way hazardous enough, jumping and slipping from boulders and

dodging falls down the precipitous slopes on all sides. The party was turning in for the night.

"August 26—The morning was warmer than yesterday and the cook was out with an early breakfast. I discussed with the others what I had seen the night before, and it was decided that four of us would explore the possibilities of reaching the glaciers on foot, over the Bull Lake Creek Canyon route, while the rest spent the day taking in the view from Indian Pass. So, taking a small lunch, we dropped over the canyon rim, descending, and in two hours' time we had reached the east end of the upper lake. The water is of a light turquoise blue, opaque, and reflecting images from its surface like a mirror. The constant supply of rock flour from the glacier above prevents it settling up. Canyon walls, boat-like rocky islands, and the clouds above were perfectly reflected from the bosom of the lake. A somewhat larger lake, lower, is joined to the upper by two booming falls, although from the camp site of the night before the two lakes appear as one. The rock basins of both were scooped out by glacial action of another period.

"Detouring on the north shore of the upper lake, progress was very slow. A large stream enters at the upper end, spreading out into the lake waters a curious fan-like delta. The valley bottom above is very narrow, and one has to choose between marshes covered with tall grass and deceptive potholes and almost impassable willow thickets. We took our share of each. Patches of timber are scattered along the route—spruce on moist ground, lodgepole pine and limber pine on drier spots, and occasional aspens among the rocks. After the middle of the day the

marshes and willow thickets alike become flooded as the glaciers melt more rapidly, and one has no choice but painfully picking a way over precarious rock-slides against the canyon walls. We put up a great many mallards and teal along the way, and I judge the ducks raise their young in the shelter of the marshes. The tall grasses and willow thickets provide ample concealment from men, but feathers and bones made me think they are subject to

frequent raids from foxes and marten.

"At noon we had arrived at a forks where two glacial torrents, one from the south and one from the west, unite to form the main stream that we had been following. We were unable to judge which of the forks bears the most water, both being strong-sounding streams racing along over boulder-strewn beds. We ate our frugal lunches, and after a discussion decided to make the effort to reach one of the glaciers that afternoon, especially as I had seen last night from Indian Pass that the south glacier would be the easiest to find. I led the way. It became necessary to cross the stream, and in felling a sizable spruce as a footlog, with only a hand ax, two hours more were consumed. An hour

more of fair going and we reached the snout of the glacier. Making a brief examination of the snout, the moraines, and the issuing stream, a few photographs were taken, and we turned back. Another arrow-head was picked up.

"For some distance below the glacier the Alpine flowers were still in bloom, especially masses of heather, with blossoms partly wilted. At the forks above the main stream were quantities of blueberries—dense, low bushes, growing on the edges of marshes. We ate freely of the



Photograph by A. C. Tate

DOWN'S LAKE, 10,600 FEET ELEVATION, FROM A POINT ONE MILE ABOVE THE OUTLET



Photographs by A. C. Tate

*Upper—SOUTH GLACIER AND OVERTOPPING PEAKS, PHOTOGRAPHED ON CLIMB TO THE SUMMIT OF GANNETT PEAK
Lower—DINWOODY CANYON, WITH GANNETT PEAK, THE HIGHEST MOUNTAIN IN WYOMING, IN THE DISTANCE*

bright, blue fruit. By this time the party began to show signs of weariness. The day had been fatiguing, and as evening came on our progress became more and more painful and slow. We could not dodge the bog-holes of the morning. I aimed, however, to get far enough down the canyon so that our fire would be seen by the men at the rim-rock camp, and as we came out of the last patch of timber above the upper Milky Lake we caught sight of the camp-fire on the canyon wall above. After grubbing about in the darkness, enough pitchy roots were gathered to kindle a fire, to show the others where we were. The night's fuel supply was collected, we dried our wet clothes, and bedded down around the fire as best we could.

"August 27—At daybreak we straightened our stiffened limbs and decided that two of the party should ascend the cliffs to the rim-rock camp, discuss the situation with them, and arrange for those who desired to make the glacier trip to return with proper equipment and food for all. It was arranged that, in case no one wished to make the venture, a signal should be given us, so that we could finally rejoin the party on top. I felt that a climb out of the Bull Lake Creek Canyon,

following the trip to the ice itself on the previous day, would tax the staying power to the limit of the ordinary man, and I was anxious to avoid twice making this climb, if possible. However, soon after 8 o'clock several pistol shots were heard, apparently the signal that no one else planned on ascending to the glacier, and the climb back to the rim-rock camp was begun. With the idea of finding a better route over the canyon walls than had been followed in coming down and possibly the site for a government trail later, a new place was chosen. Better going was found, but nothing that would indicate any possibility for a good trail location, and we arrived at the base camp about 11 o'clock.

"But the shots had not been signals, as I thought; some of the party had been at target practice, and our daybreak forerunners had not yet shown up. Anxiety was felt as to their whereabouts, but we were in no condition to search for them, my companion even having been obliged to rest from his climbing half way up until refreshment could be sent down to him. However, every one finally showed up. After several hours' rest, we began again to

plan, and the great difficulties of a trip to the snow-fields were plainly set forth, with the result that but one of the remaining party decided to return with us. Preparations were thereupon made for an early start the following morning.

"August 28—Three of us left the rim-rock camp about 7 o'clock. I carried a back pack of thirty pounds, as did Mills, and the photographer was equally laden with a more cumbersome paraphernalia. We descended to the upper lake by the route of yesterday, coming out just above the lake. Many stops were made for pictures, but good progress was made in spite of numerous showers that thoroughly soaked us. The crossing through the willow thickets was worse than before, and we wore not a dry stitch when we paused for lunch, near noon, just above the creek forks, under the shelter of heavy spruce

trees. It was a stormy day, with occasional breaks in the clouds, and by 3 o'clock we reached the glacier.

"Working our way along the snout to the terminal moraine, we finally climbed the face of the glacier, which was some 300 feet high. The morainal material pushed out by the ice was astounding in



Photograph by A. C. Tate

CURIOUS INDIAN CARVINGS SEEN ON ROCKS AROUND DINWOODY LAKE

quantity and in the huge size of the aggregates. The lower end of the ice was covered with boulders, and following the rain the glacier surface was dirty and gray. Thousands of small troughs and ice crevasses seamed the ice, radiating fan-wise toward the snout, and from the hurtling waters below the air pulsed with the uproar.

"Progress had become a difficult matter. None of us had spiked shoes, but I finally bettered my shoe packs by tying rope around the instep, and so kept from sliding entirely into the troughs. The main mass of the glacier was apparently solid ice. We must have gone fully half a mile back from the face. The glacier extended at least two miles south, pitching yet further, out of sight, in a sort of anticlinal fold; and to the west it was the same. Banked against the terminal moraine is a slender wall of ice some 500 feet high, from a tributary glacier to the west. All presented metallic tints of blue and green, with a somber dullness created by the encasing granite walls of the underlying and limiting rock.

"By the time it was too dark to make further photo-

graphs our feet were numb with cold; and, hard as the ascent had been in full daylight, the descent was even more arduous, and it was a relief to stand again on solid ground and feel the blood once more in our chilled legs and feet. The night's camp was made once more in the spruce thicket at the creek forks.

"August 29—This day we planned to make a flying trip to the west glacier, more especially as the weather was now fine. We kept close to the north side of its creek and found the going much steeper, at first, than in the other gulch. A series of shallow rock basins, occupied with small ponds, were passed, the valley broadening and affording comparatively easy traveling. After two hours of this we obtained a good view of the scene ahead. There are two separate streams of ice—one, long and narrow,

extending down some three miles east from the Divide and hemmed in by precipitous rock walls, with a well-defined terminal moraine. To the south is the largest glacier seen, judging from the size of the torrent issuing from the snout, and apparently it joins the south glacier visited yesterday. A ridge near the south cuts off the view enough to prevent a complete estimate of its size, but the scope of country that is ice-covered indicated that it is very large—larger than the maps in any way indicate.

"But our time was up, and, retracing our steps to pick up the equipment left at the forks, we reassembled our full party at the rim-rock camp by half-past four. And the next day, late, without further adventure than a good wetting in a mountain thunderstorm, the trip was completed at the JK Ranch."

Forestry Because It Pays

A. C. Goodyear, president of the Great Southern Lumber Company, says: "The owners of the company with which I am connected believe in growing timber and we practice that belief. We have embarked definitely upon a policy of leaving our cut-over land in a productive condition and protecting it against the two great enemies of young growth in the South—hogs and fire. Our policy is not the product of impractical idealism. It is the healthy offspring of business necessity—an adopted child, if you like, but adopted because it pays." Private forestry in the United States will make great strides when, and only when, the owners of forest land become convinced that it pays. It now seems that some of the more progressive companies are convinced that it pays and are starting in.

Visit Your National Parks

"Secretary Work is with us," says Robert Sterling Yard, Executive Secretary of the National Parks Association, in issuing the following invitation from Secretary Work to the American people:

"With a lavish hand nature has molded throughout our land the most magnificent and awe-inspiring scenery, surpassing in beauty and grandeur that offered by any foreign country. These spots—our National Parks—have been set aside by the American Government, to be maintained untouched by the inroads of modern civilization, so that you and your children may enjoy them. Roads have been built through deep-cut canyons, across towering mountain ranges, beside rippling streams filled with fighting trout, and into primal forests. Hotels and camps have been erected to provide comfortable accommodations in the most distant and inaccessible places. Free camp grounds have been provided for those who wish to bring their own equipment and camp out. These unspoiled bits of native America are for you. They are the playgrounds and the recreation parks of the people. To visit them and see them is to inspire pride and make more real your love for America. In the name of the Government, I invite you to be its guest."



THE DENMARK ELMS

This picture teems with interesting history, according to Mr. H. W. Henston, of Port Madison, Iowa, who nominates the trees for the Hall of Fame. They are white elms in the village of Denmark, Iowa, and while Deacon Trowbridge was in the act of planting them, in 1865, a courier galloped up, brought his horse to a stop, announced the assassination of Abraham Lincoln, and passed on. The church also is entitled to historic distinction as being the finest organization of the Congregational Church west of the Mississippi River. The first building was burned during the Civil War and replaced by the present structure.

California Forestry Students Build A Unique Meeting Place

ON a balmy night, just before the day of the "Big Game," November 24, to be exact, and by the light of a lively "camp fire," the forestry students of the University of California dedicated an open-air meeting place that is as unique as it is appropriate and useful. It is known officially as the "Foresters' Circle," and consists of eight redwood logs, each about 40 inches in diameter and ten feet long, laid horizontally to form chords of a 26-foot circle. All of the work was performed by members of the Forestry Club, and it was not a small task, for from each log they had to hew about one-fourth of its great bulk to form comfortable benches.

In the center of the circle is a hearth, or open fireplace. The setting is in a grove of eucalyptus trees close to Hilgard Hall, the home of the Division of Forestry, the grove itself being an impressive feature of the California campus, the trees towering over 165 feet above the "Circle," although less than 40 years old. There are thus represented in this outdoor theater two of the

world's largest trees—California redwood and Australian eucalyptus.

The dedication was made the occasion of a reunion of the graduates of the Division of Forestry. Earlier in the day these men met and organized an alumni association, to be known as "The California Foresters." Just prior to the evening and dedicatory meeting, Professor Walter Mulford, head of the Division of Forestry of the University and father of the idea that created the "Circle," gave a dinner to the visiting graduates and the faculty at the Faculty Club. The guest of honor of the evening was Mr. C. R. Johnson, president of the Union Lumber Company and donor of the logs. The California Section of the Society of American Foresters attended in a body.

The Foresters' Circle is to be the meeting place of the Forestry Club, and fortunately the weather of Berkeley permits holding most of the meetings outdoors. The meetings already held there indicate that it will be an important factor in developing a community of interest



THE "FORESTERS' CIRCLE"—AN OPEN-AIR MEETING PLACE COMPRISED OF EIGHT HUGE REDWOOD LOGS, BUILT AND SHAPED FOR SEATS, IN A TWENTY-SIX-FOOT CIRCLE, BY THE MEMBERS OF THE FORESTRY CLUB

and fellowship among forestry students and faculty, pride in the profession of forestry, and a feeling of responsibility to and desire to serve the nation in its efforts to solve its forestry problems. It is fortunate that the club meetings can be held amid sylvan surroundings, for it helps to intensify the love of the forest, begun in large part at the summer forestry camp in the Sierras, at which each student must spend three months as part of his course of study.

That the purpose of the Foresters' Circle will be impressed upon new members of the club and upon the many visitors to the grove, the club placed a bronze tablet on one of the logs bearing the following inscription:

FORESTERS' CIRCLE

May the Ideals Fostered Around this Camp Fire Play a Worthy Part
in the Conservation of the Beauty and Usefulness of our Forests.

GIFT OF THE UNION LUMBER COMPANY

It is thus made evident to the layman that the club members not only hold a sentimental love for the forest, but also recognize its usefulness to man and the need of so guarding it as to make this usefulness permanent.

Forest Conservation in Jugoslavia

Intelligent conservation of forestry resources worth several billion dollars is being followed by the Government of Jugoslavia, according to American observers who have spent considerable time surveying the vast natural resources of the country. This forest conservation is a part of a program for a larger use of these sources of revenue and to prevent the denuding of the timberland.—*Patrolman's Forest News*.

Wood Lasts for Centuries in Pharaoh's Tomb

The relics taken from the tomb of King "Tut" conclusively show the time-resisting qualities of wood, for it is said that with the exception of the gold throne, the alabaster vases and funeral wreaths, every object found in the outer chamber of the tomb was made of wood or had a wooden foundation. While no definite information as to the kinds of wood has been received as yet, it is known that some of the objects were made of ebony. So, for an eon of time, embracing thirty-five centuries, these wooden objects have withstood decay and the gnawing teeth of time. Once again the trees bear witness—this time to the art and science of a long-gone people, who chose wood as the medium for the expression of their most sacred sentiments.

Senate Committee to Hold Hearings in Lake States

The special Senate investigative committee, which has been holding hearings in Washington and in the South for the past several weeks on a national forest policy, has announced a program of continued hearings in the Middle West for May, as follows: Bay City, Mich., May 8; Grand Rapids, May 9; Chicago, May 10; Madison, Wisconsin, May 11; and Duluth and Cloquet, Minnesota, May 12. Quite probably the committee will visit the Pacific coast during the summer also, as San Francisco, Portland, Seattle, and Spokane are slated for hearings, if the proposed program is carried out.

May Dusk

Twilight—and May—and the gleam
Of a red star through the trees—
And out from the night an old, old dream
And a vanished voice on the breeze.
And phantom steps that pass
In an echo, soft and low,
Where a shadow streaks the whispering grass
From out the long ago.

Twilight—and May—and the night
In its traveler's cloak drifts by;
And the fields are faint with the light
Of star dust blown from the sky;
And out from the dim abode
Where only the night birds call,
A shadow drifts by the road
Where the wild plum guards the wall.

Does the blood of the red rose stir
In the veins of the sleeper still?
The rose that has guarded her
At rest by the silent hill?
And now, as the darkness nears,
Where the spectral shadows spin,
Did ghosts step out of the years
As guests from a wayside inn?

Or voices that once thrilled,
Return with an old delight?
Voices, perhaps, long stilled
In the depths of an endless night?
Or is it the winds at play
Where the whispering maples call?
Or is it the twilight—and May—
And the wild plum by the wall?

—GRANTLAND RICE in *Washington Herald*.

Pack Trails Into Back Country

By ARTHUR HAWTHORNE CARHART

HAS it been your privilege to ride the timber-line trail? Have you made camp under shadowing spruces, by streams newly born of snowbanks? Have you beheld the sun-touched clouds of the evening from some mountain-top camp, watched the shadows in the canyons below blot out rock and tree, and later sat until bedtime by a friendly camp-fire, doubly welcome at timber-line, where autumn chill is perpetual?

If you have traveled into the country where pack travel is necessary you have memories beyond value. If not, you have missed some of the joys of a most intimate touch with the outdoors and have a great adventure to look forward to and plan for.

Going into back country is not so difficult. Even the softest tenderfoot can take a pack trip in comfort. A lot depends on the attitude of mind attained before the trip is started. You must be prepared for real camp life, to enjoy little hardships and discomforts by treating them as part of the fun. When you can take things as they come and not grouch, then you are ready for your real pack trip.

A pack trip should not be a race against time. The full joy of a trip in the beyond-country lies in your ability to loaf along the trail. If you make ten miles a day, you camp at camping time. If it is fifteen or twenty, camp is with you and you lodge where you will. Do not try to make time on a pack trip. It is a most disappointing trip if you do. More pack-trip vacations are ruined through not observing this rule than from all other causes combined.

Come, may I not introduce you to some delightful trips to the country beyond the auto highway? The introduction may pave the way to your full acquaintance. It may open the door to a joyous vacation time spent in the heart of the hills.

The Solitude Trail

Do names hold any meaning? Often they do. The Solitude Trail, in the Bighorn Mountains, within the Bighorn National Forest, assuredly is no broad, crowded highway. Its name is well chosen.

Perhaps no other one trail in existence offers just the

type of majestic beauty found on the Solitude. Fifty miles of travel around its circumference presents vista after vista in massive, impressive mountain scenery.

Cloud Peak, gouged and worn by the glaciers that rest on its crest, is the hub around which the Solitude swings.

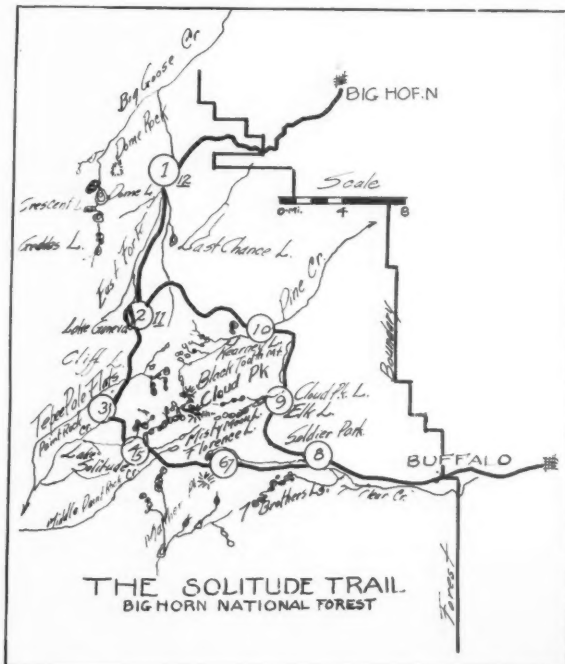


A PACK-TRAIN PARTY ON THE TRAIL—THE ONLY WAY TO REALLY SATISFY YOUR HUNGER FOR THE OUTDOORS. YIELD TO THE INVITATION OF THAT VAST COUNTRY TO WANDER AND BATHE YOUR SOUL IN ITS VARIED BEAUTY FOR A WHILE

A trip to the top of this peak is possible from the Lake Solitude side. It is a peak rarely scaled and presents a magnificent challenge to the mountaineer.

The fifty-mile circle trip on the Solitude Trail is approached from Sheridan, Tensleep, or Buffalo, Wyoming. From Buffalo one may travel by auto to Hunter Creek Ranger Station or Paradise Ranch. Beyond are trails. Up Clear Creek Canyon one travels near the Seven Brothers Lakes, under the towering cliffs that shoot skyward, and to the beautiful Lake Ellenore, that lies almost at the highest point of the trail.

Seven Brothers Lakes deserve more than mere mention. These seven lakes lie in a series. Years ago



August Hettinger, pioneer forest ranger, packed fish to these lakes. The last, hard mile, where no horse trail existed, he carried the fish-cans on his back. In one lake he planted rainbow trout, in another grayling; Eastern brook trout were planted in a third; Loch Laven were placed in a fourth, natives in a fifth, and the two remaining received a pure plant of fry. Today one single variety of fish is found in each lake. The angler knows what the catch will be, depending on which lake he visits.

Over the top from Clear Creek Canyon is Misty Moon Lake. From there the trail swings on down to Solitude Lake, around the west side of the Peak and back again by Lake Geneva and Big Goose Creek to Soldier Park and Clear Creek. The trip demands at least a week. If you plan to take this trip, write the Forest Service at Sheridan, Wyoming, for complete information.

If you seek a trip into the mountain lands, where rugged-topped mountains lift their crowns above forests, lakes, and canyons of unexcelled beauty, hunt not a step beyond the Solitude Trail. It will satisfy your hunger for a real trip in the outdoors.

The Continental Divide Trail

A zigzag trip on the continent's backbone may appeal to you. The Continental Divide trail, in southern Colorado, offers this sort of a trip.

It is a trail of high overlooks, where America stretches away on either side. One moment you are on the headwaters of streams which rush to the Pacific; the next you cross a little saddle and look into the upper basins of the Rio Grande, from which it starts the trip to the Gulf.

Like the Solitude Trail, travel here is solely by horse. Pack animals must carry your food, bed, equipment, and shelter. You camp at nights high on the massive uplift that defines the boundary between lands tributary to the eastern ocean and those of the western seas.

Antonito, Colorado, is the rail station where one happily hops out from the little coaches of the narrow-gauge railway. It is well to know that a first-class Pullman leaves Denver every night for Alamosa, where broad gauge and narrow gauge meet. The trip is so brief from Alamosa to Antonito that the novelty of the narrow gauge, with its little important, puffy engines and toy-like cars, has barely worn off before you must leave them.

A good road from here reaches into Conejos Canyon, where are places to outfit. From this canyon, with its pictured rock walls, the way is on horse trail.



A BEAUTY SPOT NEAR THE SOLITUDE TRAIL. PICTURE AFTER PICTURE, OF WHICH NATURE IS THE ARTIST, MAY BE GLIMPSED FROM THIS SCENIC TRAIL

Up the canyon the way leads, by the mouth of the beautiful South Fork, on to the lakes at the head of the Lake Fork of the Conejos. Platoro, an old mining camp, a ghost town of the Old West, is but a few miles along the trail, which then swings around Conejos Peak and southward to Blue Lake and the Continental Divide.



LAKE SOLITUDE, AT THE END OF THE SOLITUDE TRAIL, A NOTED FISHING WATER SURROUNDED BY COUNTRY OF UNEXCELLED BEAUTY

On south the trail runs, first on the Atlantic side of the great watershed, then on the Pacific slope. Blue Lake is left with reluctance; but a reward soon comes when the magnificent outlooks to the mountains eastward

and the crags and canyons westward swing into view.

Up through the Alpine barrens, over snowfields years old, through the elfin-wood forests of timberline, and around the heads of great canyons, the trail winds. There are scores of lakes on the route. Among the most beautiful are the Dipping

Lakes, that lie in a high mountain valley where spruce grows luxuriantly.

Finally, climbing out of the high cradle of the Dipping Lakes, the trail reaches the end of a spur ridge, where



THE UNIQUE CHAIN OF LAKES KNOWN AS "SEVEN BROTHERS." THEY ARE THE DELIGHT OF THE ANGLER IN THIS COUNTRY, FOR MANY YEARS AGO A FOREST RANGER STOCKED THEM, AND IN SO DOING PUT ONLY A SINGLE VARIETY IN EACH LAKE, SO THAT THE ENTHUSIASTIC FISHERMAN KNOWS JUST WHERE TO GO FOR WHAT HE WANTS



FROM CONEJOS CANYON, WITH ITS PICTURED ROCK WALLS, THE WAY IS ON HORSE TRAIL. UP THE CANYON THE TRAIL LEADS, BY THE MOUTH OF THE BEAUTIFUL SOUTH FORK, ON TO THE HEAD OF THE LAKE FORK OF THE CONEJOS



THE TRAIL REACHES THE END OF A SPUR RIDGE, WHERE THE OUTLOOK TAKES IN WHAT ONE FEELS MUST BE A LARGE PART OF NEW MEXICO. TRULY, ONE FEELS HE IS AT THE TOP OF THINGS WHEN HE TRAVELS THIS HIGH LINE ON THE ROOF OF THE CONTINENT. THE RETURN TRIP TO THE BEAUTIFUL, BROAD CANYON OF THE CONEJOS TAKES HALF A DAY AND LIES OVER THE SPRUCE-BORDERED LA MANGA PASS TRAIL



THE PARTY IS HALTED BY SNOW ON THE CONTINENTAL DIVIDE

the outlook takes in what one feels must be a major portion of New Mexico, and then drops quickly to Cumbres Pass. The return trip to the beautiful, broad canyon of the Conejos is a half-day ride from Cumbres over the spruce-bordered La Manga Pass Trail.

If a trip along the only trail of its kind in the West, where one never is quite sure if he is on the eastern or western slope, seems inviting to you, write the Forest Supervisor at Monte Vista, Colorado, and ask of the Continental Divide Trail. He can give you detailed data, cite outfitting places, and tell of local conditions on the trail. Generally, it is not open before July 1st. The trip outlined takes a week to ten days.

"Sittin' on the World!" said our guide when our party traveled the trail from Blue Lake.

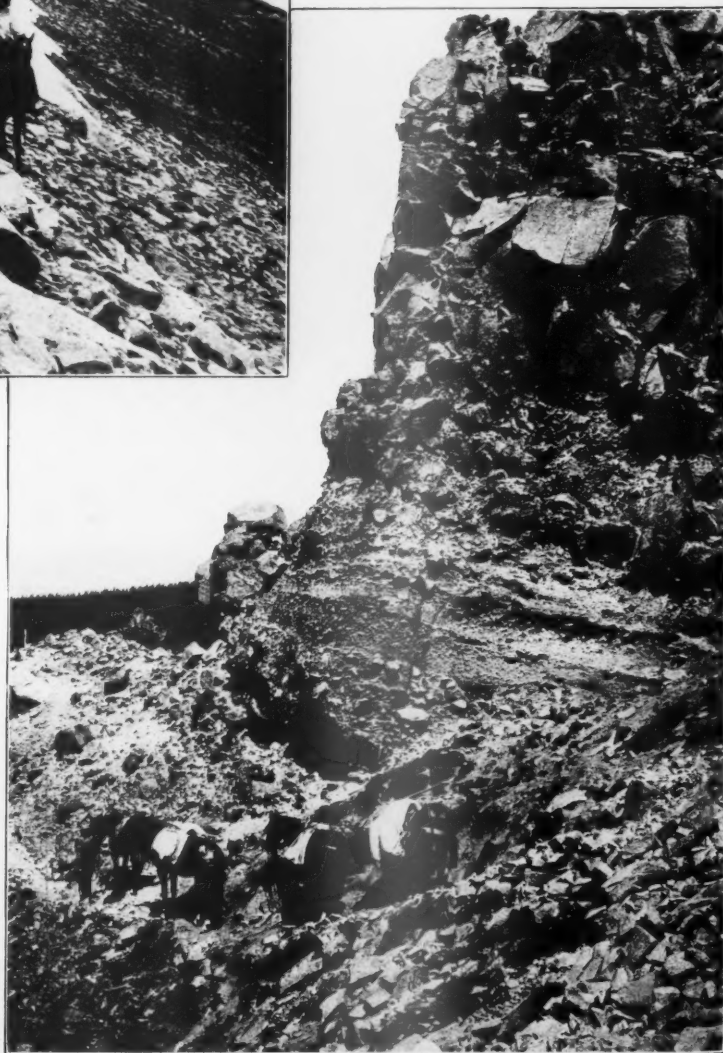
No more expressive short description of this trail may be found. There is a feeling of being at the top of things when

one travels this high line on the roof of the continent.

To Saganaga

Packing into back country with horses can be found anywhere in the West. But there is only one place in the country where one can pack into wilderness by canoe and be in or near public property all of the time. That is in the Superior National Forest of Minnesota.

In the West we have about a hundred and seventy million acres of mountain territory in National parks, forests, and monuments. In nearly every reservation



THROUGH THE ELFIN WOOD FORESTS OF TIMBER-LINE AND AROUND THE HEADS OF GREAT CANYONS THE TRAIL WINDS, UNTIL ONE IS NEVER QUITE SURE IF HE IS ON THE EASTERN OR WESTERN SLOPE OF THIS HIGH MOUNTAIN LAND

there is some section where a trip on horseback can be made. We have only a little more than one million acres of lakeland wilderness, and this is practically all in the Superior Forest. It is one of the most unique and delightful areas we own, and no one is more important in all our national recreation system.

An ideal trip into this section is from Ely, Minnesota, to Saganaga Lake and return. Every trip in the Superior Forest is by canoe. There are no horse trails or auto roads. A trip by canoe is somewhat more economical than by horse and pack outfit. Furthermore, it is a type

reach Saganaga in a few days or take two weeks to make the trip. The most direct route is from Ely to Winton, Minnesota, by truck; thence by canoe or motor-boat through Fall Lake and a smaller lake to Basswood. Basswood is a lovely lake, nearly thirty miles in length. Bays and lesser divisions of the lake cut back miles into the shore, so this lake must have literally hundreds of miles of shoreline.

But we should not stop at Basswood, however, inviting it is. Saganaga is the goal.

Upper Basswood Falls boom down into a great bay at



EVENING ON SAGANAGA! THIS ALMOST-UNHEARD-OF LAKE IS ENCHANTING. NO DESCRIPTION IS ADEQUATE. IN THEIR POETICAL WAY, THE INDIANS LONG AGO CHRISTENED IT SAGANAGA—"THE-LAKE-WHERE-THE-ISLANDS-MERGE-AND-BLEND," FOR THERE ARE COUNTLESS ISLANDS IN THIS BEAUTIFUL BODY OF WATER, EACH A GEM IN ITSELF

of travel in which the vacationist must take a very active part.

Saganaga! This almost-unheard-of lake is enchanting. No description is adequate. The Indians christened it. Like all Indian names, it is fully descriptive. Saganaga means "The-Lake-Where-the-Islands-Merge-and-Blend." There are countless islands in this beautiful body of water, each a gem. Often the only land in sight is all on islands.

The Superior National Forest is laced through and through with waterways. One is bewildered with innumerable canoe trips when he reaches Ely, the end of rail and highway. The waterways radiate in every direction. But if one is in doubt, take the trip to Saganaga. There is no better.

There are several ways of getting there. One may

the International inlet to Basswood. The gamiest of fresh-water fish can be caught in these waters. The portage to the smooth waters above the falls is on the Canadian side. From here the way is through a series of lakes to Knife, or Mo-ko-man, Lake. On the map it looks like a knife partly open. Mo-ko-man in the Indian tongue means knife.

Just a few miles before Saganaga is reached by this route one passes through the lake white men call Cypress. But the Indian calls it the lake "Where-the-Otter-Left-His-Track." It is gorgeous. No other brief description is adequate. The waters are of peculiar clearness and tint. The cliffs drop from the sky to black shadowy depths of the waters. How far these sheer rock walls dive beneath the surface is not known. The waters at their foot are very deep, and if one knows just where to look, there

is a form in the rock walls which has all the appearance of being the petrified impression of a gigantic otter foot. There are several of these "tracks" on the cliff walls, and from these the Indians named the lake.

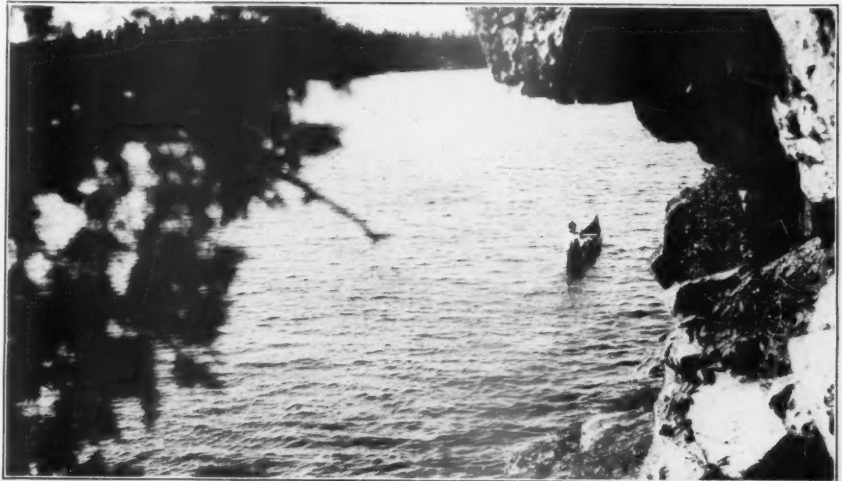
Four long days or an easy week will take the canoeist to Saganaga. To the northward, as one enters this majestic lake of beauty, is Cache Bay. The major outlet of the lake is here, and this waterway forms the northern boundary of the famous Hunters' Island. One may turn here and swing into the Quetico Forest of Canada and return to Ely one of several ways. It is a favorite route. Two weeks should be the very least allotted to this trip. Three weeks is a much better time.

Another route back lies through Alpine or Sea Gull Lakes to the southward; thence to Ca-be-miche-ga-me and Ogish-ge-muncie, to Little Saganaga, the Kawishiwi River, In-sula, Alice and Hudson Lakes and Lakes 1, 2, 3, and 4.

No place in America is more interesting to the lover of the outdoors than this land, where travel is by canoe. Little islands topped with stately Norway pine are mirrored in level lake surfaces. Shy deer peek at you from the thickets at the edge of the stream or on lake shore.

The alluring lakes that lie on the way to Saganaga and return offer one of the most delightful highways to wilderness country that one may find the world over. Are these introductions attractive? Would you like to travel these trails—to swing around Cloud Peak, on the Solitude; to travel the ridgepole of the Continent; to live for a fortnight in the land of the Ojibway, on the water trails to Saganaga?

Come! Why not? They are far more interesting than any written introduction could ever be—these trails into the Country Beyond.



IN CANOELAND. NO COUNTRY IN THE WORLD SURPASSES THE SUPERIOR NATIONAL FOREST AS A CANOE LAND. THE OPPORTUNITY FOR THIS TYPE OF RECREATION IN THIS BEAUTIFUL FOREST MAKES IT ONE OF THE MOST ALLURING OF ALL OF OUR NATIONAL FOREST PLAYGROUNDS

The Story of the Bobolink

By FANNY S. SIMMONS



From the south he came in the month of May—a stunning fellow in his brand-new wedding suit. Joyous and buoyant he was—just a reflection of the beautiful day that greeted him on his arrival.

The nice part of it all was that he was not only happy, but he wanted every one around him to know his happiness. His joy really seemed infectious—faces brightened as he sang; saddened hearts seemed to feel the sunshine of his presence, and the world was a happier, better place because of him.

“Only a bobolink”! Well what of that? He certainly brought the summer with him, and no music was ever so joyous and glad as was his.

How unusual his clothing! Nature reverses things with the bobolink. Seen from below, one would think him only a little blackbird; but when he lights on a clover’s top, one can see the pretty black-and-white mixed top-coat and smile at the yellow cap that he wears so carelessly on the back of his head.

He comes with many other bobolinks. Sometimes two or three hundred of them come flying up north together, singing as they come. I remember seeing fifty or more in a tree one lovely day in early May, and I not only saw, but heard, such a chorus of song that never can I forget its marvelous beauty.

Think of bringing from far-away South America such an orchestra! Up they come through Florida, where they are called the May birds. The male birds, like the men in pioneer times, come ahead and blaze the trail. The “women folks” fly along later, and how they find the particular birds that belong to them has ever been a mystery. They find them, however, and to housekeeping they go in the clover meadows; and if you can find their nests, you can do better than most people can. It is a pretty nest, hidden away where the fragrant blossoms and June daisies bend above it.

The wife has no black-and-white wedding dress. She is garbed always in brown, and when the babies come they, too, are clothed in the same brown dress as is the mother.

They have a busy, happy time up in this northern country. After the 4th of July, however, the rollicking song of the father is hushed and one seldom hears any note of joy from his throat. Just the metallic tink! tink! is heard.

About this time he throws off his lovely wedding clothes, and after moulting appears in the sparrow-like brown colors of his family.

Harvest time comes—early harvest time—and the bobolink family gets ready to go south again. Together they fly to the wild rice fields, where they eat their fill, and then on to the cultivated rice fields of South Carolina and Georgia, where they again expect to eat their fill. But disaster often overtakes them here, and they are killed in numbers and served as “reed-birds, four on a skewer, fifty cents,” to people who never could have known them and heard their rollicking northern song, else they could never have eaten a mouthful of the reed-bird.

The survivors go on and on, across to Cuba, where they are called Chambergoes—on through Central America to South America, where they rest for the winter and await the springtime.

When you hear people talk about the vanity of woman, her love of clothes and change of dress, remember to suggest to the maligner the fact that the *males* of some families are the ones to deserve this criticism.

Mrs. Bobolink wears ever the same quiet brown suit, but Mr. Bobolink just has to have a change, and every spring sees him getting a new stunning suit for his wedding trip, while poor Mrs. Bobolink comes along almost unnoticed in another dress, just exactly like the one she wore the year before, and *no yellow bonnet*.

America's Transition from Old Forests to New

By E. T. ALLEN

IV. THE FUTURE

WHEN in any country reckless forest exploitation passes its zenith and the light lies on the other slope, or, better, reversing the image, when the wood-users begin to find it pays to climb out of the shadow into which following the easiest declivity has led them, the upward trend is no less certain than was the downward one. It is propelled by economic forces which, now that they are recognizable in the United States, will as always, if comprehended and not thwarted, gather strength and momentum. If we are to assist them, a forecast of the future is no less valuable than a history of the past or a survey of the present. And it must reckon with the use of forests as well as with their growth.

It pays to grow trees when those already grown are not too cheap; it pays to use trees economically when such material as may be saved cannot be had cheaper otherwise. In smaller countries than ours, there is not such distinction between these statements. They are affected by our long distances. It might seem that both forest growing and closer use would have begun first and simultaneously in the older regions near the Atlantic seaboard. Closer use did, because of transportation charges on material from a distance and of a dense population able to use a large quantity of low-grade material that does not bear these charges. Reforestation did not keep pace, however, except for pulpwood, to supply expensive plants not easily moved, because it was



(Cress-Dale Photo Company, Seattle)

ONE OF OUR NEW FORESTS—WESTERN WHITE PINE IN IDAHO, WHICH HAS FOLLOWED LUMBERING AND ESCAPED FIRE, AND WHICH GRAPHICALLY SUGGESTS THAT THROUGH THE MERGING OF PUBLIC AND PRIVATE EFFORTS THE GROWTH OF THE FUTURE MAY REBUILD THE GLORY OF A FOREST PEOPLE

cheaper to reach westward for the needed balance of high-grade lumber.

In the west, low-grade material cannot readily be marketed. The local population cannot use it and it cannot stand transportation cost. On the other hand, reforestation is simpler and has an appeal to a stationary industry, unable to migrate again that it has not had to the vanishing or migrating type. Hence it is already well begun. It is reasonable to assume that reforestation interest will move eastward as the east and south better realize the advantage of a home-grown supply that need not bear the transportation cost, which is al-

ready half or more of the price paid for western lumber. Also, that closer utilization in the west, now anxiously

sought by the lumbermen as carrying cost increases the investment in their trees, will be pushed as far and fast as growing market for low-grade material permits. Willful waste, which once skimmed the cream because new fields lay ahead, no longer exists anywhere. Nor is there any region of virtually free timber, to send its products to market at a price which cannot be met consistently with economy and sound business. Hereafter both lumbermen and the public must make the most of what is available.

Once this situation arrived to mark a turn in our national conduct, its necessities inspired a progress which will be increasingly apparent. The same American inventiveness and driving power which signalized our destructive exploitation processes should develop equal ingenuity in the opposite direction. Closer manufacturing, the saving of by-products, and the invention of new forms of wood utilization will reach high refinement and also be adapted to the changing character of a forest becoming less a mine of virgin timber and more a crop of younger growth.

THE DRIVING POWER OF NECESSITY

Big old trees containing much clear, knotless lumber will be needed for special purposes. Profitable forestry cannot duplicate these, for it takes hundreds of years. So not only will their contribution to less exacting uses be confined to the poorer material they also contain, but new wood products will utilize inferior species and quickly grown young trees. We already use wood fiber in construction commodities of the wall-board type, as well as in phonograph records, fiber-silk wearing apparel, and other disguised forms. Future forests may go largely into fiber compositions that do not require old trees. We have found not only that no material equals wood in strength for airplane propellers, but also that it is strongest when many small strips are laminated and glued, to distribute the stresses more safely than can a single piece. It is but another step to supplant the big construction timber from a single tree by a perhaps better laminated timber built up of many smaller ones.

Industrial research has already developed many such economies, waiting for our adoption. Some of them do not pay yet, while lumber is sufficiently available. Some lag because manufacturers hesitate. Others are retarded because, although the lumberman wants to use all his material, conservative consumers persist in demanding the familiar products that were standardized by wasteful use when waste was economy. For years attempt has been made to sell "odd-length" lumber; but the public still insists on having it run 12 feet, 14 feet, 16 feet, and so on. If a defect in a tree restricts a log



(Cress-Dale Photo Company, Seattle)

TYPES OF VIRGIN DOUGLAS FIR AND WESTERN RED CEDAR—BIG OLD TREES CONTAINING LENGTHS OF CLEAR, KNOTLESS LUMBER, WHICH CANNOT BE PROFITABLY REPRODUCED BECAUSE IT TAKES HUNDREDS OF YEARS TO GROW THEM

to 13 feet, the manufacturer must cut off another foot—an 8 per cent waste.

Countless secondary wood-working establishments now remanufacture either lumber or the waste therefrom. Furniture, vehicles, implements, household utensils, and toys suggest an interminable list. These establishments are being left behind by the migration of lumbering. Transportation cost on their raw material is becoming serious. They will regroup near the permanent supplies, sometimes merging with lumber manufacture, thus effecting economy in both, closer utilization of the forest, and conspicuous encouragement of forest-growing. Similar will be the result of a barely glimpsed but certain tremendous utilization of lumbering by-products other than waste pieces and wood fiber—alcohols, oils, turpentine, lyes, creosotes, acids, and other chemicals and essential substances. A chemist's list of what can be made of wood, when it is commercially profitable, seems to a layman to contain almost everything but metal.

THE SPARK OF A PROGRESSIVE SPIRIT

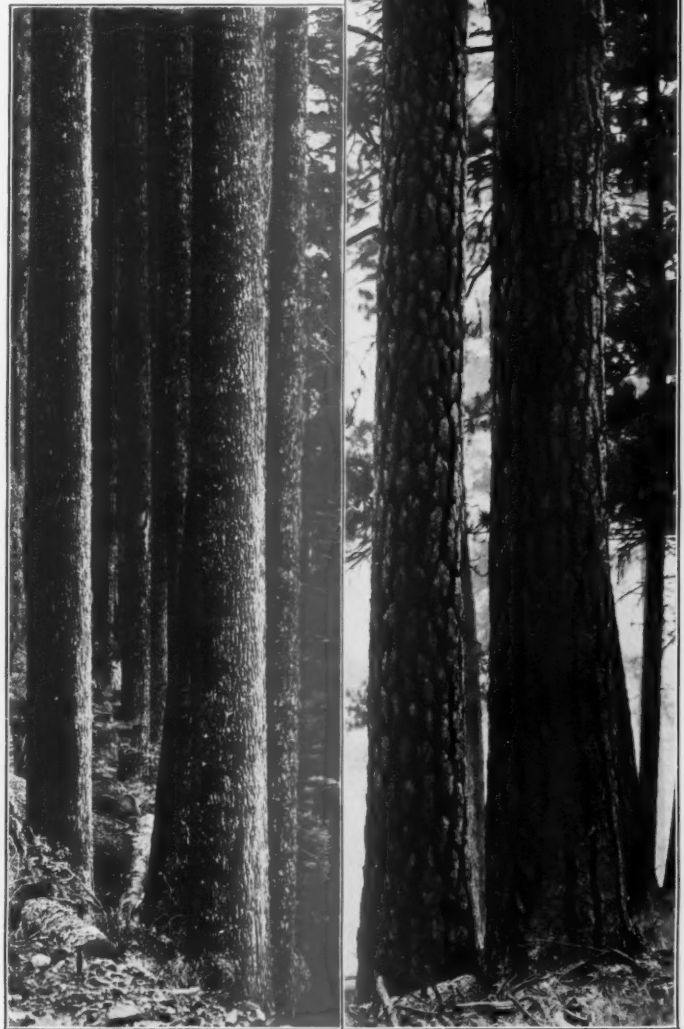
All these influences are gathering force in the industry which controls over half our privately owned forests and which we broadly term lumbering, although it also includes paper-making and other wood manufactures owning their own timber tracts. It has again two significant divisions—those which are near the close of their operations and have small interest in the future, and those which have long life ahead and are adjusting themselves to a new order. Of the former, there is not much to hope, except as they are forcibly influenced by progress during their temporary survival. The latter class, however, is awakening, although even yet far from realizing how rapidly a progressive spirit must fire it from within, now that the spark is kindled. It is still inclined to be pessimistic when the obstacles are considered, but nevertheless knows in its heart that survival requires making the most of the remaining forests and perpetuating their productiveness.

Industry cannot undertake the task alone, however. State and nation must carry much of the land; also create practicable forestry conditions for that retained in private ownership. Keeping our eyes ahead, so as meanwhile to build firmly the foundations upon which our final forest policy will rest, we must seek to visualize the industrial types of, say, 25 years hence and how they will use the land they keep; also the public's part of the whole project then.

Perhaps still unfinished, the process will then be well along of determining where and how much land we must keep in forest; also its ownership and responsibility division. As in other crop-growing, the main production will be

sought in the most favorable regions. Forest growth is most rapid in the South and near the Atlantic and Pacific coasts. The drier, colder inland regions will be called on in the measure that these districts prove inadequate.

Private enterprise will retain considerable virgin timber still uncut, an unexpectedly large area of valuable second growth on lands now restocking, and some freshly cut land which by reason of quick productivity and accessibility promises to be profitable permanently under private forestry management. This also will be more extensive than the industry now hopes, for with better fire prevention forest reproduction will be simplified and cheapened, while the developed use of immature material will shorten the wait for returns, and it is reasonable to suppose the public will cease to prohibit the enterprise



(Cress-Dale Photo Company, Seattle)
WESTERN HEMLOCK AND WESTERN PINE, TYPICAL INDIVIDUALS OF
THE GREAT FORESTS OF THE PACIFIC COAST REGION, WHERE LIE
OUR LAST IMPORTANT STANDS OF VIRGIN TIMBER

by confiscatory taxation. To the extent these factors permit, private forestry will be found taking permanent care of favorable areas, especially where tributary to



SUCH REPRODUCTION, TWENTY-FIVE YEARS AFTER LOGGING, IS VISIBLE PROOF THAT STRONG FAITH IN THE POWER OF OUR FORESTS TO "COME BACK" IS JUSTIFIED. THE EVENTUAL ADJUSTMENT AND INCREASED ACQUISITION OF OUR PUBLICLY OWNED FORESTS WILL GO FAR TO ASSURE THE PERPETUATION OF OUR VIRGIN TYPES

permanent operations, amounting to a large aggregate, although still insufficient for the public welfare.

A PARTIAL GUIDE TO PUBLIC OWNERSHIP

Of the balance taken over by the states and the nation some will be good enough to be highly profitable, some less so, although the public can command cheaper

money for the enterprise, and another proportion will be held publicly because it must be done. State, and perhaps municipal, acquisition will increase, both because it pays directly and to assure continuity of local industry and water-flow; national acquisition will be both for profit and to afford the consumer at large the protection other agencies cannot afford to give him. It is also always necessary for the public to hold certain special-use forests, as to preserve virgin types like the redwood for their interest, or to produce clear grades of slow-growing hardwoods which take too long to reimburse private investment. Looking to older countries for a partial guide, we find that for all these reasons 71 per cent of Switzerland's forests are in public ownership, 53 per cent in Germany, 48 per cent in Rumania, 39 per cent in old Austria, and 35 per cent in France.

This adjustment of final ownership will vary in our states with their advantages for forest-growing. While it remains in process, the cost of keeping all the land productive until it is complete will be distributed in some manner among all concerned, since all have to benefit thereby and since it will not be done otherwise. No single agency will assume a properly joint burden. Whether states and nation will co-operate directly to assure reforestation on unprofitable private lands they must assume eventually, or whether attempts will be made to require the work of the owner if he is still lumbering and to enable him to pass the cost on to the current consumer, is a question still unsettled. But it will be settled, or some other solution found, long before the eventual and permanent responsibility is fixed by economic developments.

THE LUMBER INDUSTRY OF THE FUTURE

Under whatever ownership the forests of tomorrow may be, there must be a vast lumber industry to make them useful and support their communities. This will be differentiated into two distinct types. Many of the large plants of today will follow others that have already disappeared as their virgin timber supply failed, and be supplanted by small and numerous portable mills that can handle scattered tracts of new growth profitably. Much of the lumber of the future will always be of this old-fashioned type, produced in this small and individual way. On the other hand, changed conditions will also lead often to operating units even larger than are common today; for where the supply is available, these will prove the most efficient and economical in producing the new and refined products of the future, in marketing and distributing at a distance, and in giving privately retained forest lands the proper management and protection. They will give stability and permanence to forest communities, their labor, farm products, and secondary wood-using industries, and also to the market for timber crops grown on state and national forests and on private lands other than their own, including farmers' woodlots.

When our final forest policy is established, mystery

and prejudice concerning forest industry will have disappeared, for we shall all be in the business ourselves, more or less; also forced, as we have not yet done, to study constructively and dispassionately the financial and economic conditions under which it can be permanently conducted. It will have the interest now accorded agriculture, with its needs and responsibilities equally comprehended. Neither agitators, public, nor lumbermen will then be permitted to consider forestry a class question, with public and private interests opposed; for we shall have realized that forest-growing, forest manufacture, and forest use are interdependent components of one vast productive activity of the nation—using its land, employing its people, supplying its wants—like agriculture in its demand for a co-operative prosperity, but unlike it in demanding, because of even lower returns and longer investment, public participation to assure adequate volume.

DOUBT NOT THE GENIUS AND SENTIMENT OF A FOREST PEOPLE

For the first time in our history, this concept is taking form in the leading minds of hitherto aloof and mutually suspicious elements, and they are drawing together to find that mutual understanding destroys many supposed obstacles, and to seek means of removing the others with mutual effort, time, and patience. To doubt success, with this resolve, is to doubt the theory of American institutions and the genius of a forest-born people still possessed of ample forest lands.

And although consideration must be largely and prospectively economic, for economic facts must be faced, he is an ill prophet who does not reckon with the sentiment of such a people. However practical they may be, there has not been obliterated a love of the forest for its own sake, which will demand, as well as wood and water, such preservation of esthetic and recreation values as shall perpetuate their best traditions and meet reviving needs of the spirit. Without this sentiment, neither forests nor peoples survive.

THE END.

"What has thus happened in northern China, what has happened in Central Asia, in Palestine, in North Africa, in parts of the Mediterranean countries of Europe, will surely happen in our country if we do not exercise that wise forethought which should be one of the chief marks of any people calling itself civilized. Nothing should be permitted to stand in the way of the preservation of the forests, and it is criminal to permit individuals to purchase a little gain for themselves through the destruction of the forests when this destruction is fatal to the well-being of the whole country in the future."—Theodore Roosevelt.

A Worn-out Field

I AM a worn-out field,
Buyers pass by in scorn;
No longer my pulses thrill
To the plowman's touch at morn.
Of no more use to man,
Now I may lie and rest,
Like a ragged blanket flung
'Gainst the craggy hillside's breast.

Is there not one to tell
Of the glory of days gone by,
When my proud branches seemed
Brushing the very sky?
Then was I sought by men,
Greedy were they to share
In my wondrous wealth, nor paused
Till they saw me stripped and bare.

Years did I lie out then,
Nursed by the sun and dew,
Till deep in my heart was born
The strength to struggle anew.
Blotting out death came life,
Creeping like living flame—
A clothing of soft green grass
And vines to cover my shame.

Deep did I drink from life,
Till my veins ran full and free;
A million flowers gave
Their lives to succor me.
Then came horses and men,
With plow and harrow and spade.
Loud was the crack of the whip,
Black was the wound they made.

Now it was not enough
To give them my humble store;
They sifted me through and through,
Greedy seeking more.
Giving me nothing back,
What could I do but die,
The cruel lips of lust
Sucking my life-blood dry.

Despised by bird and bee,
Bloomless my barren sod,
Shriveled and sere and old,
Pity me, patient God!
I am a worn-out field,
Tossed from the plow in scorn.
Years must I lie and wait
For the Resurrection morn.

—Maud Morrison Huey.

Protect Your Magazines

IN OUR SPECIAL BINDERS

American Forestry stamped in gold
on cover



\$2.00

Each

Net

Two

For

\$3.50

Net

Capacity—Twelve Issues

Issues can be bound as received
All orders to

The American Forestry Association
914 Fourteenth Street N. W.
Washington, D. C.

CAMP MISHIKE—THE TURTLE



A Forestry Camp for Boys
in Wisconsin's Woods.
Definite Program of Forestry,
Canoeing, Camping,
Under Direct Supervision
of Foresters, 1,600 Acres

—4 Miles of Shore on 3 Lakes. W. E.
Sanderson, Director, P. O. Box 555, Madison,
Wis. Summer Address, Camp Mishike,
Winchester, Wis.

PLEASANT THINGS WE HEAR

"To help along the good work, I wish to join the Association personally as well as officially, and I think I can get some of my friends to join also, so kindly send me half a dozen application blanks at your earliest convenience."—*William A. L. Bazeley.*

"The AMERICAN FORESTRY Magazine carries with it such a wonderful fund of information that I am going to have it bound in book form. It is a forest history of our country that I must preserve."—*Mrs. W. W. Stark.*

"Allow me to congratulate you upon the fine issue of AMERICAN FORESTRY for February. I think the article by Mr. E. T. Allen is particularly fine, and I look forward to reading his subsequent articles."—*Anson C. Goodyear.*

"I cannot afford to have AMERICAN FORESTRY, which we have always taken, absent from my reading table."—*Arabell White Hemingway.*

"Again congratulations. Your March issue is even more attractive than the two preceding ones. It is quite the best issue that AMERICAN FORESTRY ever had, both as to contents, cuts, and printing, and is a wonderful credit to you."—*P. S. Ridsdale.*

"Your February number is a beautifully printed and illustrated issue and is filled to the brim with interesting things."—*Robert Sparks Walker.*

"The January issue of AMERICAN FORESTRY has been received, and I wish to congratulate you upon getting out a number such as this. I think that the contents and get-up are the best that I have ever seen since becoming a member of the American Forestry Association, ten years ago."—*Karl E. Pfeiffer.*

"The magazine has been exceedingly interesting during the past year, and I wish you continued success in the valuable work you are doing."—*F. E. Schall.*

"As Dr. Coue says, every month, in every way, the AMERICAN FORESTRY magazine is getting better and better."—*Arthur De Zur.*

"I think AMERICAN FORESTRY is the best magazine of its kind published and can't get along without it."—*George E. Wagner.*

"Every day, in every way, your magazine is getting better and better."—*Charles F. Young.*

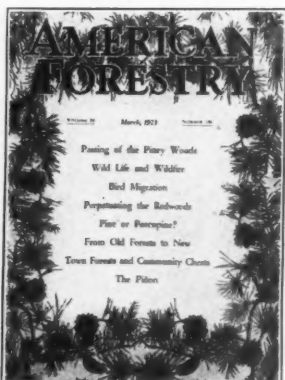
"I think the January issue of AMERICAN FORESTRY is one of the best I ever read."—*Arthur De Zur.*

"I am much pleased with the magazine and pass it on to some children at a Community House in Philadelphia when I am through with it."—*Henry B. Abbott.*

"Reading our magazine every month makes my enjoyment of the Colorado forests much more complete."—*C. W. Doherty.*

Every tree lover should receive the beautifully illustrated monthly magazine American Forestry. Write to the Office, 914 Fourteenth Street, Washington, D. C., for a sample copy.

PLANT TREES
PROTECT FORESTS
USE FORESTS



This is the only Popular National
Magazine devoted to trees and
forests and the use of wood.

May, 1923

BECOME A MEMBER—SECURE SUBSCRIPTIONS FROM YOUR FRIENDS

FILL OUT THIS BLANK:—

Date _____, 1923

THE AMERICAN FORESTRY ASSOCIATION

914 FOURTEENTH STREET N. W., WASHINGTON, D. C.

I hereby apply for membership in The American Forestry Association and enclose \$-----

INDICATE CLASS OF MEMBERSHIP DESIRED

- | | |
|--|----------|
| <input type="checkbox"/> Subscribing Membership, per year, including Magazine----- | \$4.00 |
| <input type="checkbox"/> Contributing Membership, per year, including Magazine----- | 10.00 |
| <input type="checkbox"/> Sustaining Membership, per year, including Magazine----- | 25.00 |
| <input type="checkbox"/> Life Membership (no other dues for life), including Magazine----- | 100.00 |
| <input type="checkbox"/> Patron Membership (no other dues for life), including Magazine----- | 1,000.00 |
| <input type="checkbox"/> Annual Membership, without Magazine----- | 1.00 |

Canadian Postage 25c extra; Foreign Postage 50c extra on subscribing memberships.

Name _____ Occupation _____

Street _____ City and State _____

Especially interested in articles on _____

Mention American Forestry—It Helps

GAME CENSUS

The game census of the National Forests in District 4 shows some interesting facts:

All forests have deer on them, the Kaibab the most, the Caribou the fewest.

Elk are next most widely distributed, being found on twenty-one forests; most on the Teton, fewest on the Lemhi.

Mountain sheep are scarce, but widely distributed, being found on seventeen forests. The Teton leads in numbers, the Boise is the tail-end.

With mountain goats it is different. They are found on only seven forests, and the Boise leads, with the Payette at the foot of the list.

Moose are found on five forests, the Teton having the most, the Salmon the fewest.

Antelope also are found on five forests, the Lemhi leading and the Minidoka bringing up the rear.

CALIFORNIANS CHECK VANDALISM

A "Hill and Mountain Club" has recently been organized in Tulare County, California, writes Ernest G. Dudley, for the purpose of aiding in the prevention of the ruthless destruction of wild flowers, loss by fire, pollution of streams, and the littering of picnic grounds and camp sites, and to make and keep beautiful the foothill and mountain roadsides. The members are required to take the following pledge:

"I pledge myself to leave the hills and mountains as beautiful as I find them; to observe and aid in the enforcement of all measures intended to preserve their natural features, and to respect private property and the rights of others."

Enthusiastic nature lovers thus register their protest against the needless destruction of natural beauty, and it is hoped that similar clubs may be widely organized.

THE NATIONAL CONFERENCE ON STATE PARKS

The program for a nation-wide system of state parks, similar to those now provided by the Federal Government and a few of the more progressive states, is expected to receive a very decided impetus as a result of the Third National Conference on State Parks, to be held early in May. Friends of conservation from every section of the country, representatives of park boards, and official delegates named by the governors of practically every state in the Union will gather in picturesque Turkey Run State Park, Indiana, on May 7, for a three-day convention.

Judge John Barton Payne, of Chicago and Washington, former Secretary of the Interior, and president for twelve years of the South Park Commissioners of Chicago, is serving his second term as Chairman of the National Conference on State Parks. He believes the establishment of new state parks will not only serve to strengthen the na-

tional policy of conservation, but will prove a boon to thousands of motorists.

"Each year the number of touring motorists has been increasing by thousands," Judge Payne explains. "With the steady increase in good state and national highways, and the increased number of automobiles sold, motor touring has become more and more popular. But most people, when starting out, want some objective. This can be



Judge John Barton Payne

furnished with more state parks. The nineteen national parks have proved an attraction to literally hundreds of thousands, but they are entirely inadequate to care for all the tourists."

The meeting at Turkey Run State Park next month will be the third of its kind since this organization was formed at Des Moines, Iowa, in 1921, by a group of public-spirited citizens interested in developing the idea of state parks. The initial gathering called by Judge Payne while he was Secretary of the Interior was largely of a missionary character. The second convention, held last May at Palisades Interstate Park, Bear Mountain, N. Y., was successful in interesting a number of states in starting state park projects, notably in Utah, Missouri, and Nebraska. It is believed that the forthcoming conference will prove even more successful.

It is expected that growing out of the Turkey Run convention there will be formed a more stable organization for all-year-round work in behalf of state parks. At present the National Conference is limited to an annual meeting. The contemplated plan is for an organization which can act as a clearing house for information on state parks, and which can be utilized by various states in fostering park plans.

Mention American Forestry—It Helps

AMAWALK NURSERY

MEMORIAL TREES

Particularly fine specimens of Oak, Maple, Elm, etc., for memorial planting. Trees from 15 to 30 feet are recommended. Each tree is recorded with the American Forestry Association to perpetuate its memory.

Amawalk, Westchester Co., N. Y.
Tel., Yorktown 128

NEW YORK CITY OFFICE
372 Lexington Avenue
Tel., Vanderbilt 7691

Orchids

We are specialists in Orchids; we collect, import, grow, sell, and export this class of plants exclusively.

Our illustrated and descriptive catalogue of Orchids may be had on application. Also special list of freshly imported unestablished Orchids.

LAGER & HURRELL
Orchid Growers and Importers Summit, N. J.

TREE SEEDS

Large collection of Evergreen, Tree, Shrub, and Hardy Perennial Seeds from all parts of the world.

Send for Catalogue
CONYERS B. FLEU, JR.
6628-30-32 Ross Street
GERMANTOWN - PHILADELPHIA

TREES FOR FOREST PLANTING

PINE :: SPRUCE

CONIFERS ONLY

Write us for price list

KEENE FORESTRY ASSOCIATION,
KEENE, N. H.

EVERGREENS TREE SEEDS

We specialize in growing trees for Forest Planting

THE North-Eastern
Forestry Company
NURSERIES SEED HOUSE
Cheshire, Conn. Willboro, N. Y.

TREE AND SHRUB SEEDS

Domestic and Imported

"QUALITY FIRST"

Price List on Request

Special Quantity Prices

OTTO KATZENSTEIN & CO.

Tree Seedsmen

Atlanta, Georgia. Established 1897

LOBLOLLY PINE SEEDLINGS

4-6 in. @ \$0.75 per 1000

6-12 in. @ 1.00 per 1000

75c per 1000 by 100,000 lots

MRS. M. H. MARSHALL
BERLIN, MD.

Books on Forestry, Lumber, Trees, Birds, Etc.

	Price		Price
ADVENTURES AMONG BIRDS—W. H. Hudson.....	\$4.00	MINDS AND MANNERS OF WILD ANIMALS—Wm. T. Hornaday..	2.50
ADVENTURES OF A NATURE GUIDE—Enos A. Mills.....	3.50	MODERN PULP AND PAPER MAKING—Paul Witham.....	6.00
AMERICAN BOYS' BOOK OF CAMP-LORE AND WOODCRAFT—Dan Beard.....	3.00	NATURAL STYLE IN LANDSCAPE GARDENING—Frank A. Waugh	2.50
AMERICAN FOOD AND GAME FISHES—Jordan and Evermann..	4.40	NORTH AMERICAN FORESTS AND FORESTRY—E. Bruncken...	2.00
AMERICAN FOREST REGULATION—T. S. Woolsey, Jr.....	3.50	NUT GROWING—Robt. T. Morris.....	2.50
AMERICAN FOREST TREES—Henry H. Gibson.....	6.00	ORGANIZATION OF THE LUMBER INDUSTRY—Wilson Compton	2.00
AMERICAN NATURAL HISTORY—Wm. T. Hornaday. 1 vol. edition	5.00	OUR NATIONAL FORESTS—R. H. D. Boerker.....	2.50
4 vol. edition.....	10.00	OUR NATIONAL PARKS—John Muir.....	1.85
AMERICAN SILVICULTURE—C. A. Schneck.....	2.15	OUR NATIVE TREES—Harriet Keeler.....	3.00
ART AND CRAFT OF GARDEN MAKING.....	15.00	OUR NORTHERN SHRUBS—Harriet Keeler.....	3.00
ARTISTIC ANATOMY OF TREES—Rex Vicat Cole.....	5.00	OUR TREES AND HOW TO KNOW THEM—Emerson-Weed.....	3.50
BIRDS—N. Blanchan.....	1.75	OUR VANISHING FORESTS—Arthur Newton Pack.....	2.00
BIRDS IN THEIR RELATION TO MAN—Clarence M. Weed.....	2.50	PAPER AND ITS USES—Edward Dawe.....	4.00
BIRDS OF FIELD, FOREST, AND PARK—Albert Field Gilmore..	2.50	PAPER MAKING, THE ART OF—Alexander Watt.....	4.00
BIRDS OF THE UNITED STATES AND CANADA—Thos. Nuttall..	5.00	PRACTICAL FORESTRY—John Gifford.....	2.50
BOOK OF FORESTRY—Fred F. Moon.....	2.00	PRACTICAL NATURE STUDY AND ELEMENTARY AGRICUL- TURE—Stanley Coulter.....	1.60
BOOK OF THE NATIONAL PARKS—Robt. S. Yard.....	3.00	PRACTICAL TREE REPAIR—Elbert Peets.....	2.35
BULB GARDENING—Mary Hampden.....	2.75	PRACTICE OF SILVICULTURE—R. C. Hawley.....	4.00
CAMP FIRES IN THE CANADIAN ROCKIES—Wm. T. Hornaday..	5.00	PRESERVATION OF STRUCTURAL TIMBER—Howard F. Weiss..	3.50
CAMP FIRES ON DESERT AND LAVA—Wm. T. Hornaday.....	5.00	PRINCIPLES OF AMERICAN FORESTRY—S. B. Green.....	2.00
CAMP FIRES IN THE YUKON—Harry A. Ayer.....	3.00	PRINCIPLES OF HANDLING WOODLANDS—H. S. Graves.....	2.50
CHEMISTRY OF PULP AND PAPER MAKING—Edwin Suter- meister.....	6.00	PROPAGATION AND PRUNING OF HARDY TREES, SHRUBS, ETC.—J. C. Newsham.....	3.00
CLEARING AND GRUBBING—Halbert P. Gillette.....	2.50	ROMANCE OF OUR TREES—Ernest H. Wilson.....	10.00
DEVELOPMENT OF FOREST LAW IN AMERICA—J. P. Kinney..	2.50	SCHOOL BOOK OF FORESTRY—Charles Lathrop Pack (See Ad Page 318).....	1.00
ELEMENTS OF FORESTRY—Brown and Moon.....	3.50	SEEDING AND PLANTING IN THE PRACTICE OF FORESTRY— James W. Toumey.....	4.00
ENGLISH ESTATE FORESTRY—A. C. Forbes.....	3.50	SHADE TREES IN TOWNS AND CITIES—William Solotoff.....	3.50
ESSENTIALS OF AMERICAN TIMBER LAW—J. P. Kinney.....	3.00	SILVICULTURE OF INDIAN TREES (3 vols.).....	47.25
FAMILIAR STUDIES OF WILD BIRDS—F. N. Whitman.....	3.00	SONG BIRDS AND WATERFOWL—Howard E. Parkhurst.....	1.50
FAMILIAR TREES AND THEIR LEAVES—Schuyler Mathews.....	3.50	SPORTSMAN'S WORKSHOP—Warren H. Miller.....	1.75
FARM FORESTRY—John Arden Ferguson.....	2.00	STUDIES IN FRENCH FORESTRY—T. S. Woolsey, Jr.....	6.00
FARM WOOD LOT—Cheyney and Wentling.....	1.75	STUDIES OF TREES—J. J. Levison.....	2.25
FERNS AND HOW TO GROW THEM—G. A. Woolson.....	1.25	STUDIES OF TREES IN WINTER—A. O. Huntington.....	3.50
FIELD BOOK OF AMERICAN TREES AND SHRUBS—Schuyler Mathews.....	2.00	THEORY AND PRACTICE OF WORKING PLANS—A. B. Reck- nagel.....	2.50
FIELD BOOK OF AMERICAN WILD FLOWERS—Schuyler Mathews	2.00	TIMBER—By J. R. Baderden.....	2.00
FIELD MANUAL OF TREES—John H. Schaffner.....	2.00	TIMBER—P. Charpentier.....	6.00
FIRST BOOK OF FORESTRY—Filibert Roth.....	1.10	TIMBER AND SOME OF ITS DISEASES—H. M. Ward.....	2.80
FLOWERS—N. Blanchan.....	2.00	TIMBER, ITS STRENGTH, SEASONING, AND GRADING—H. S. Betts.....	3.00
FOREST LAND—Allen Chambers.....	2.25	TIMBERS AND THEIR USES—Wren Winn.....	5.00
FOREST MANAGEMENT—A. B. Recknagel.....	2.50	TIMBERS OF COMMERCE AND THEIR IDENTIFICATION—H. Stone.....	3.50
FOREST MENSURATION—Herman Haupt Chapman.....	5.00	TRAINING OF A FORESTER—Gifford Pinchot.....	1.50
FOREST PHYSIOGRAPHY—Isaiah Bowman.....	5.00	THE TREE BOOK—J. E. Rogers.....	4.00
FOREST PRODUCTS, THEIR MANUFACTURE AND USE—N. C. Brown.....	4.00	TREE PRUNING—A. Des Cars.....	.75
FOREST RANGER—John D. Guthrie.....	1.50	TREES, HOUGH'S HANDBOOK OF (photo-descriptive). Covers the trees east of the Rocky Mountains and north of the Gulf States. (See Ad Page 319).....	8.00 and 10.00
FORESTRY FOR WOODMEN—C. O. Hanson.....	2.00	TREES, HOUGH'S LEAF KEY TO THE (of the same territory as the Handbook) and a Botanical Glossary.....	.75
FORESTS OF NEW YORK STATE—A. B. Recknagel.....	2.50	TREES—J. E. Rogers.....	1.75
FORESTS OF UPPER INDIA AND THEIR INHABITANTS—Frank- lin Webber.....	5.00	TREES—Marshall Ward.....	2.00
FORESTS, WOODS, AND TREES—A. Henry.....	7.50	TREES AND SHRUBS—Prof. Chas. Sprague Sargent.....	5.00
FOREST VALUATION—Herman Haupt Chapman.....	3.00	TREES AND TREE PLANTING—J. S. Brisbin.....	1.50
FRENCH FORESTS AND FORESTRY—T. S. Woolsey, Jr.....	3.00	TREES AS GOOD CITIZENS—Charles Lathrop Pack (See Ad Page 318).....	2.00
HANDBOOK FOR RANGERS AND WOODSMEN—Jay L. B. Taylor	3.00	TREES EVERY CHILD SHOULD KNOW—J. E. Rogers.....	1.00
HANDBOOK OF FIELD AND OFFICE PROBLEMS IN FOREST MENSURATION—Winkenwerder and Clark.....	2.00	TREES IN WINTER—Blakeslee and Jarvis.....	3.50
HISTORIC TREES OF MASSACHUSETTS—J. R. Simmons.....	4.00	TREES OF NORTHERN UNITED STATES—A. Angar.....	1.00
IDENTIFICATION OF ECONOMIC WOODS OF THE U. S.—S. J. Record.....	2.50	TREES, SHRUBS, AND VINES OF NORTHEASTERN U. S.— Howard E. Parkhurst.....	1.50
IMPORTANT TIMBER TREES OF THE U. S.—S. B. Elliott.....	2.50	TREES, SHRUBS, VINES, AND HERBACEOUS PERENNIALS— John Kirkegaard.....	2.50
IMPRESSIONS OF EUROPEAN FORESTRY—R. S. Hosmer.....	1.00	TREE WOUNDS AND DISEASES—J. Webster.....	2.50
INJURIOUS INSECTS AND USEFUL BIRDS—F. T. Washburn.....	2.50	UNITED STATES FOREST POLICY—John Ise.....	5.10
KEY TO NORTH AMERICAN BIRDS—Elliot Coues (2 vols.).....	15.00	VALUATION OF AMERICAN TIMBERLANDS—K. W. Woodward..	3.00
KEY TO THE TREES—Collins and Preston.....	1.50	VOCABULAIRE FORESTIER—Par J. Gershell.....	1.75
KILN DRYING OF LUMBER—H. D. Tiemann.....	4.50	WOOD—G. S. Boulger.....	2.50
LOG OF A TIMBER CRUISER—W. P. Lawson.....	2.25	WOOD AND OTHER ORGANIC STRUCTURAL MATERIALS— C. H. Snow.....	5.00
LOGGING—Ralph C. Bryant.....	4.50	WOODS, HOUGH'S AMERICAN—Illustrated by specimens (14 vols.), per volume (See Ad Page 319).....	7.50 and 10.00
LUMBER AND ITS USES—R. S. Kellogg.....	2.25		
LUMBER MANUFACTURING ACCOUNTS—A. F. Jones.....	2.25		
MANUAL FOR NORTHERN WOODSMEN—Austin Cary.....	2.50		
MANUAL OF TREES OF NORTH AMERICA—C. S. Sargent.....	12.50		
MANUAL OF FORESTRY, vol. 1—Hawley and Hawes.....	3.50		
MANUAL OF TREE DISEASES—Howard Rankin.....	3.25		
MECHANICAL PROPERTIES OF WOOD—S. J. Record.....	2.50		

Members of the Association are entitled to a discount of 10 per cent from the above prices

All books published can
be obtained from

The American Forestry Association, 914 14th Street, Washington, D. C.

ATTENTION, FORESTERS!

AMERICAN FORESTRY will print, free of charge in this column, advertisements of foresters wanting positions, or of persons having employment to offer foresters. This privilege is also extended to foresters, lumbermen, and woodsmen who want positions, or to persons having employment to offer such foresters, lumbermen, or woodsmen.

POSITIONS WANTED

YOUNG MAN, 21 years old, high school graduate, and at present employed as district school teacher, desires Forestry work with a lumber company or private estate for summer vacation and longer if work is satisfactory. The best of references. Box 4090, care **AMERICAN FORESTRY**, Washington, D. C. (2-4-23)

WANTED, to communicate with party interested in Forestry to act as financial partner in developing some large tract of cheap land, must have sufficient capital, would accept straight salary, large fruit or farm proposition considered. Have made this my life work and study, short course graduate, several years' experience, logging, road-making, pruning, manager 1,500 acre farm, orchard and forest combined. Address Box 4095, care **AMERICAN FORESTRY MAGAZINE**, Washington, D. C. (2-4-23)

FORESTER—Experienced graduated forester from large middle-west university. Master of Science degree in forestry. A specialist in tree diseases. At present employed in City Forestry work in city of 140,000 inhabitants, but would like change to a larger city. Have had five years of experience in eastern, middle-west, and southern sections of the country. Would prefer southern California. Address Box 5020, care **AMERICAN FORESTRY**, Washington, D. C. (4-6-23)

GRADUATE FORESTER would like job in Southern Appalachians or Southern Pine Region. Four years in Forest Service. One year in France lumbering with 10th Engineers. One year in state work in fire prevention, where he is now. Has worked from Pennsylvania to Alabama and in Idaho. Some agricultural experience. Address Box 5035, care **AMERICAN FORESTRY MAGAZINE**, Washington, D. C. (5-7-23)

GRADUATE FORESTER with 8 years of experience, both practical and technical, in the United States and Canada. Has had charge of large logging operations, estimated large areas of timberland for both buyer and seller. Open to change of employment. Best of references furnished. Address Box 5040, care **AMERICAN FORESTRY MAGAZINE**, Washington, D. C. (5-7-23)

WANTED

SOLICITOR for reputable Tree Surgery Company, vicinity of New York City. Address Box 5050, care of **AMERICAN FORESTRY**, Washington, D. C. (3-5-23)

EXPERT TREEMEN WANTED—We will require this year a number of experienced treemen and tree surgeons at various points throughout the eastern seaboard. Please write fully your qualifications. Address Box 5030, care **AMERICAN FORESTRY MAGAZINE**, Washington, D. C. (5-7-23)

PAPER FROM ALASKAN WOODS

Alaska can supply one-third of the paper needs of the United States, according to a recent Forest Service report, and our paper consumption is growing each year. Pulp timber on the Tongass National Forest amounting to 334,000,000 cubic feet is being advertised for sale.

Two large bodies, one of 260,000,000, the other 74,000,000 cubic feet, are involved. The smaller body is within a few miles of Cascade Creek, one of the best water-power streams in Alaska; the other is 40 miles distant, on Kupreanof and Kuiu Islands. Navigable and sheltered waterways furnish a cheap and easy way for towing the logs to Cascade Creek power site on Thomas Bay.

The lowest bids that can be considered are 60 cents per hundred cubic feet for Sitka spruce and 30 cents per hundred for hemlock and other species. Three-fourths of the pulpwood is western hemlock and one-fourth Sitka spruce. The final date for receipt of bids by the District Forester at Juneau, Alaska, is July 31, 1923. The bidder is assured that accepted prices will hold good until 1930, with possible adjustments every five years thereafter.

LIFE ON EVEREST'S HEIGHTS

Although the 1922 British Expedition to Mount Everest failed in its principal aim, which was to reach the top of the highest mountain in the world, it did succeed in finding out a number of things of much interest to scientific men. These things are now being made known in various scientific journals, says the *Science News-Letter*.

Certain brave little plants, such as edelweiss, were found blossoming at a height of nearly 20,000 feet. Wild animals and birds, such as mountain sheep, ravens, and rock doves, unacquainted with human beings, showed no fear of them at all, readily eating from the climbers' hands. These wild sheep, ravens, and doves, together with wolves, foxes, rabbits, rats, mice, and condors, with a few other birds, were found at an altitude as high as 20,000 feet and occasionally even a thousand or more feet higher. Condors were observed flying high above the mountain's north summit, 24,000 feet above sea-level, where the atmosphere was only one-third as dense as at sea-level.

Some naturalists have proposed the theory that life on the earth must have begun first on mountain summits, for these summits might be considered as the first parts of the earth to be cool enough for the existence of living things. Geologists point out, however, that many of our highest mountains were formed since those earlier geological epochs in the rocks of which plant and animal foods have been found.

FORESTRY TRAINING In the Heart of the Rockies

The Colorado School of Forestry

A Department of Colorado College
Colorado Springs, Colorado

Four and five-year undergraduate courses and a two-year graduate course in technical forestry, leading to the degrees of Bachelor of Science in Forestry and Master of Forestry. Forestry teaching in spring and fall at Manitou Forest (a 7,000-acre forest belonging to the School) and the winter term at Colorado Springs.

Write for announcement giving full information.

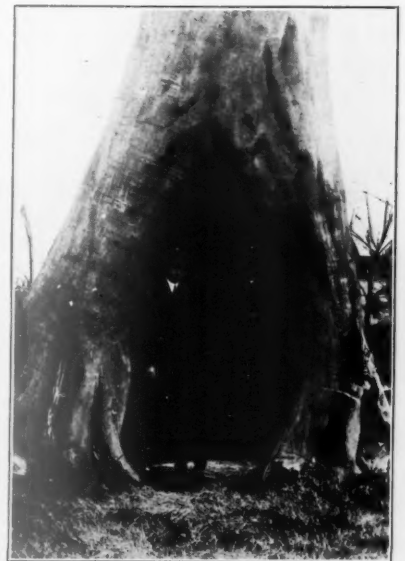
Send for FREE story

Interesting, illustrated folder "How to get Greater Desk Efficiency" shows how to keep your desk cleared for action. Thousands of Kleradesks are giving entire satisfaction. Saves time locating, distributing or sorting papers. Takes less space than a tray. Sent FREE trial.

Kleradesk



Free Mailing Lists
Will help you increase sales
Send for FREE catalog showing details covering names of your best prospective customers. Counts and prices are given on thousands of different Mailing Lists.
99% by refund of 5¢ each
ROSS-GOULD CO
232 N. 10th Street, St. Louis



HISTORIC BLACKHAWK TREE

Part of the giant cottonwood tree known as the "Blackhawk Tree" is on the grounds of a resident of Evanston, Illinois. The tree is an authentic relic of the early Indian period, and it is said that Chief Blackhawk and other Indians often held council within it. A man on horseback can easily enter the trunk and turn around in it.—W. F. Hild.

SLEEP ON AIR

— IN A —
COMFORT SLEEPING POCKET



COMFORT SLEEPING POCKET

NOT A FILTHY SWEAT-BOX SLEEPING BAG but an IDEAL outdoor bed with air mattress and pillow enclosed within a waterproof felt-lined cover. Weighs 12 pounds and packs 8x8x25 in.

RECOMMENDED and APPROVED

by Forest, Reclamation, and Geodetic Service of the U. S. Government

Metropolitan products have stood the test for 40 years and are recommended by thousands of reliable campers, woodsmen, automobilists, and fishermen for quality and durability.

SATISFACTION GUARANTEED OR MONEY REFUNDED

Write today for latest catalogue

METROPOLITAN AIR GOODS COMPANY
105 Marble Street ATHOL, MASS.

The Association's supply of October, November, and December, 1921, and October and November, 1922, copies is exhausted. It will be appreciated if members having copies of these issues, for which they have no further use, will send them to the Association. Postage will be refunded.

PUBLIC SALES

We have purchased 122,000 pair U. S. Army Munson-last shoes, sizes 5½ to 12, which was the entire surplus stock of one of the largest U. S. Government shoe contractors.

This shoe is guaranteed one hundred per cent solid leather, color dark tan, bellows tongue, dirt and waterproof. The actual value of this shoe is \$6.00. Owing to this tremendous buy we can offer same to the public at \$2.95.

Send correct size. Pay postman on delivery or send money order. If shoes are not as represented we will cheerfully refund your money promptly upon request.

National Bay State Shoe Company
296 Broadway New York, N. Y.

LEADERSHIP

France so closely utilizes her forest trees that she obtains one-seventh of her lumber from trees that grow along canals, rivers, and between lots, according to a bulletin issued by the New York State College of Forestry at Syracuse University. The prodigality in the use of forest lands by Americans is astonishing to foreigners, especially in countries like Sweden, Germany, and France.

On waste land, areas where trees once grew, but on which nothing now grows, we lead the world by a disgracefully large margin. This area represents more territory than New York, Pennsylvania, New Jersey, Delaware, and Maryland. It represents an area larger than the combined forest lands of Germany, Belgium, Denmark, Holland, France, Switzerland, Spain, and Portugal.

We have another vast acreage of semi-devastated forest land that has been cut over and is producing only one-fourth of the forests it should grow. This region is almost as large as all the states on the Atlantic seaboard.

These vast tracts are being increased annually by three or four million acres. Much of this is taken from our virgin forests that will last no more than twenty-five years at the present rate of cutting. We lead all the nations of the world in forest fires (30,000 annually). We burned every twelve months during the five years ending 1920 approximately 9,000,000 acres, at an average estimated loss of \$85,000,000. Insects are damaging our forests, at a very conservative figure, to the extent of \$100,000,000 a year, and disease is destroying trees in great quantities. The per capita consumption of timber has been curtailed since 1906 more than one-third, due to scarcity of wood and high prices. We are growing only one-fourth of the volume taken from the forest and actually utilizing not more than 25 per cent of the average tree that is cut down.

Confronted with this serious situation regarding one of the nation's most valuable resources and the increasing devastated and semi-devastated forest lands, we are planting through state, federal, and private interests not more than 50,000 acres a year. We should be planting at least as much as we use and destroy.

APPROXIMATELY 166,000,000 acres of privately owned forest land are wholly unprotected from fire, says the Forest Service, United States Department of Agriculture. On many other areas the protection is incomplete and inadequate. Based on a six-year average, the annual loss of property from forest fires is \$16,424,000; yet a yearly expenditure of \$9,263,000 would fairly protect all of the privately owned timber lands in the United States.

WESTERN PINE MENACED

An area of 1,276,264 acres of yellow pine timber, or twice the size of Rhode Island, located in the heart of our last great stands of virgin timber, is threatened with destruction by a bark beetle, according to the United States Forest Service.

In this area located in southern Oregon and northern California the losses from 1910 to 1919 have aggregated 1,200,000,000 board feet, according to experts of the Bureau of Entomology, causing an average annual destruction of three hundred and sixty thousand dollars' worth of timber.

The insects were largely cleaned out on 200,000 acres last year, and the survey has shown that an area of about 722,000 acres still needs control measures applied.

The female beetle bores through the bark, laying her eggs inside, and the larvae when hatched live on the sap-conducting layer, girdling it and shutting off the flow of sap, which soon kills the tree. The control measures consist in felling the tree and peeling off the infested bark, thus exposing the larvae of the beetle to hot sunlight, which kills them.



BLENNERHASSET TREE

In connection with the Burr-Blennerhasset conspiracy, on what is now known as "Blennerhasset Island," near Parkersburg, West Virginia, it is said that when Blennerhasset was pursued by the militia he took refuge in a large sycamore or buttonwood tree, in which there was a large hole. This hole is now almost closed by growth. The tree is one of a number of objects of interest on Blennerhasset Island pointed out to visitors who have read of the well-known Burr-Blennerhasset conspiracy. It shows no signs of decay as yet, though the incident on which its historic claim is based took place about 1807.



The crate on the left is one of several crates designed for a manufacturer of automotive axles. It takes the place of the crate shown on the right.

The advantages of the new crate are: a marked saving in lumber; a considerable decrease in weight; more rigid construction; prevention of side play; better protection for the drum; lessened labor cost.

A further instance of what Weyerhaeuser Crating Engineers are doing for shippers every day.



Better Crates with Less Lumber

A YEAR'S experience with our special Crating Service has brought out one very significant fact.

It doesn't pay a concern to be too sure that its crating practices cannot be improved.

Some of the most startling savings our Crating Engineers have effected, have been made for concerns who were entirely satisfied with the containers they were using.

A year's work among many industries in many parts of the country has proved that in the great majority of cases our Crating Engineers have been able to build better crates with less lumber. And where savings in lumber have not been possible they have built stronger crates and effected other savings of equal importance.

HERE in brief is the story of the two crates pictured above:

The new crate, designed to carry a 3-ton truck axle, requires 36.3 feet less lumber—a saving of 52%.

It weighs 112 pounds less than the old crate.

These two items represent a saving of \$2.02 per crate.

Labor cost is reduced approximately 50%.

The structural advantages of the new crate over the old one can readily be seen: the lock corner construction makes it stronger and more rigid; the notches in the end members prevent the side play which often weakened the old crate in transit; redesigning of the side members

affords better protection to the brake drum.

Shippers who have adopted scientific crating report other advantages—of perhaps even greater importance than factory savings. It eliminates damage claims and speeds up collections. It decreases sales resistance and so gives the salesman a new selling tool. Safe packing builds good will.

THE services of Weyerhaeuser Crating Engineers are offered to executives of business concerns—by appointment on request.

There is no charge for this service. This organization feels that the position of lumber as the standard material for shipping containers imposes the obligation to deliver 100% value with every foot of lumber we sell.

For crating purposes, this organization supplies from its fifteen distributing points, ten different kinds of crating lumber, of uniform quality and in quantities ample for any shipper's needs.

A booklet, "Better Crating," which outlines the principles of crate construction and explains the personal service of Weyerhaeuser Engineers, will be sent on request to any manufacturer who uses crating lumber.

Weyerhaeuser Forest Products are distributed through the established trade channels by the Weyerhaeuser Sales Company, Spokane, Washington, with branch offices at 208 South La Salle Street, Chicago; 220 Broadway, New York; Lexington Building, Baltimore; and 2694 University Ave., St. Paul; and with representatives throughout the country.



WEYERHAEUSER FOREST PRODUCTS SAINT PAUL • MINNESOTA

Producers for industry of pattern and flask lumber, factory grades for remanufacturing, lumber for boxing and crating, structural timbers for industrial building. And each of these items in the species and type of wood best suited for the purpose.



**TWO
WONDERFUL BOOKS**
and the remarkable
NATURE MAGAZINE
(ONE YEAR)



**All three for
\$5.00**

These fine books are by Charles Lathrop Pack, President American Tree Association. Well printed; bound in selected buckram; profusely illustrated. Easily worth twice their cost.

Trees as Good Citizens. A complete book about shade trees. How to identify, select, plant, grow, and care for them. Suggestions for Roads of Remembrance and Memorial Trees. A practical as well as romantic book. Many illustrations in natural colors, half-tone, and line. Necessary to every home owner, every lover of trees, every educator, every student. This book alone, \$2.00.

The School Book of Forestry. Should be in every home and school. Tells the story of our forests, past and present. How forests protect civilization; their commercial value; trees in wood lots; conservation of forests and timber. Forest knowledge in a nutshell. This book alone, \$1.00.

Nature Magazine. A new monthly magazine devoted to birds, flowers, plants, animals, fish, and all the lore of the out-of-doors, and nature photography. Beautifully and profusely illustrated. Necessary for every man, woman, and child desiring knowledge of nature. Regular price, 25c per copy.

Send No Money. Ask us to send books and magazine on approval. If they please you, remit—otherwise return.

Order NOW from:—

American Tree Association
1214 Sixteenth Street, Washington, D. C.

❧ **BOOK REVIEWS** ❧

THE FORESTS OF NEW YORK STATE. By A. B. Recknagel. Macmillan, New York. \$2.50.

In this book the author's aim is to show what the forests of the Empire State have meant in the past development of the state and nation, and to give some idea of their present significance and their vast potentialities for the future. "Half of New York State is better suited to the growing of forests than to any other purpose, and while seventy years ago the state was pre-eminent in the lumber industry, she is today spending vast sums for imported timber."

The author deals entirely with the economic aspects of the subject—the character of the land and its forests, the lumber industry, the pulp and paper industry, the development of a state forest policy, forestry as a land problem and forestry as an industrial problem.

Although written for the general reader and chiefly for the people of New York State, it is replete with trustworthy and authoritative information not previously available in assembled form, and it will be invaluable for foresters and other professional men who are interested in state forests.

OUR VANISHING FORESTS. By Arthur Newton Pack. Macmillan, New York. \$2.00.

In this book, popularly handled for general consumption, Mr. Pack makes a strong plea for the encouragement of interest in wood as a crop, for more effective fire protection, for Federal leadership exercised through the extension of our National Forests and through the development of a market for wood now wasted during the process of lumbering and manufacture. He stresses the value of the farm woodlot and the municipal forest movements as keynotes of the new attitude toward solving our forest shortage, and urges the need of public education and co-operation in order to guarantee a permanent wood supply. The book tells of the usefulness of the forest in supplying us with wood for a thousand necessities, from the making of toothpicks to great steamship piers, and tellingly treats of the ways in which wood, in the form of myriad forest products, enters the daily life of the nation.

Announcement is made by Blakiston's of the second American edition of Palladin's "Plant Physiology," which is just from the press. The new edition has a biographic note and chapter summaries by the editor, 173 illustrations, eight volumes, xxxiii+360 pages, and sells for \$4.00. It is based on the

German translation of the sixth Russian edition and on the seventh Russian edition and is edited by Burton Edward Livingston, Ph. D., Professor of Plant Physiology and Director of the Laboratory of Plant Physiology of Johns Hopkins University.

Two popularly written books have recently come from the press by Charles Lathrop Pack, president of the American Tree Association—"The School Book of Forestry" and "Trees as Good Citizens." The first, as the name implies, is handled with a view to educational use and will be of value to teachers and students interested in forests and forestry. It is replete with information, clearly and concisely put, which every man, woman, and child of these United States should have, regarding our original forests, their depletion both through use and abuse; the protection of our remaining forests, and what is needed to renew and perpetuate our source of wood supply. The second is the story of the shade tree in its every aspect, setting forth delightfully the rights of the various species to claim good citizenry. In telling about shade trees—their selection, planting, care, the treatment of diseases and injuries, and their intrinsic value—the author stresses the human and most appealing side of trees and makes a valuable, unique, and dignified contribution to the vast literature on the subject. The book is unusually well illustrated, carrying one hundred and twenty-four illustrations in black and white and sixteen full-page color illustrations of superlative beauty.

NEW WASHINGTON ROAD MAP

The Forest Service has issued what is conceded to be the most complete road and recreation area map of the State of Washington ever put out. A supply of these maps has been received by the District Forester's office in Portland, Oregon. The map shows in red all paved roads, all National Forest recreation areas, national parks, and the new state parks. It shows the location of all trunk highways and secondary roads as well as mileages. On the back of the map folder are listed the 59 municipal camp grounds of the state, as well as State and National Parks Association parks; also descriptions of all National Forest recreation grounds. The list of municipal camps contains complete data as to accommodations to be found at the different camps, which information will prove of great value to autoists.

The map is issued free and copies may be obtained from the District Forester, Portland, Oregon.



"PUT'S OAK TREE"

The stump of a tree shown in the picture is all that is left of the original oak to which Gen. Israel Putnam, commonly known as "Old Put," was tied when taken prisoner during the French and Indian war of 1756. He would have been burned there but for the intervention of a French officer, and, even as it was, he remained in bondage during the whole of an engagement, during which he might have been struck by the bullets of either friend or foe. It was, in fact, his foes who released him, taking him to Canada as a prisoner. This tree stood on the top of what is called Indian Ridge, at Crown Point, New York. It was blown down about twenty years ago, but the stump remains on the grounds of a private individual and is carefully guarded from possible vandalism.

ART BETTERS NATURE IN MOVIE-LAND

Cecil B. de Mille, the movie king, has made pictures fourteen times in the redwoods, and yet he says that the redwoods of California are photographed adequately for the first time in Jeanie Macpherson's "Adam's Rib," which has now been released by Paramount. And all because he did not go to the giant forests, but built his own right in the studio!

This forest is said to be one of the real marvels of recent cinema construction. It is 112 by 252 feet, the largest set ever built inside a studio. It covers over 26,000 square feet. It has a 200-foot running stream with a fall of 18 feet, a pool, a fallen tree, and a cave. There are 45 huge trees, twelve of which are over fifty feet in circumference. Twelve thousand ferns were needed and nearly six tons of Oregon moss. It is said to have taken 400 carpenters and plasterers 24 hours a day to make this forest. It cost thousands and thousands of dollars. And it will return thousands, believe the producers, for it permitted the placing of lights and

properties in a manner to produce eye-pleasing results where Nature is sometimes kind to the vision, but very, very hard on the more exacting camera lens.

De Mille himself is convinced that within ten years "going on location" will be almost a forgotten phrase.

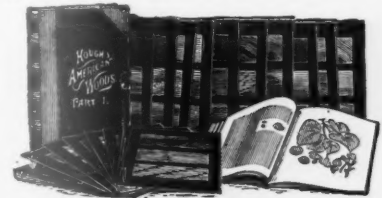
IT IS significant, says Col. William B. Greeley, Chief Forester, in the annual report of the Forest Service, that in the southeastern group of states, North Carolina, South Carolina, Georgia, Florida, Alabama, and Mississippi, of which only North Carolina is organized for forest fire protection, the area of forest land burned in 1921 was 58 per cent of the total in the United States, and the damage to timber was 49 per cent of the total damage in the country.

NEW FOREST SCHOOL

Louisiana State University will be the first in the South to have a complete course in forestry. This course will be opened next September. The new course is an outgrowth of the summer forestry camps conducted by Major J. G. Lee, of the Department of Forestry and Horticulture, and Mr. V. H. Sonderegger, State Forester of the Conservation Department, in various sections of the state. Particular emphasis will be placed upon southern timber conditions, better methods of lumber manufacture, closer utilization, fire prevention, and reforestation.

HOUGH'S AMERICAN WOODS

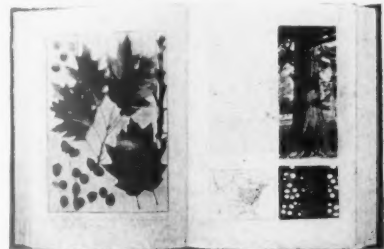
A publication illustrated by actual specimens (showing the end, "quarter" and "flat" grains of each wood) with text telling uses, properties, distributions, etc.



A volume of AMERICAN WOODS open. The plates containing the specimens go with the text into the clasped book-like cover.

HOUGH'S HANDBOOK OF TREES

Is photo-descriptive and enables one to identify all of the trees east of the Rocky Mountains and north of the Gulf States at any season of the year. 891 illustrations.



The HANDBOOK opened at Red Oak. Two pages facing each other are devoted to a species. "Its illustrations almost carry the scent and touch of the original."—*New York Times*. "These books are gems and worth far more than you ask for them."—*Luther Burbank*.

Mounts of Woods for Microscope and for Lantern, Tree-Studies for Lantern, and Greeting and other Cards of Woods of unique interest

Send for announcements and samples

ROMEYN B. HOUGH COMPANY, Lowell, N. Y.

Historic Trees of Massachusetts

By JAMES RAYMOND SIMMONS

A
Book
For
Tree
Lovers



\$4.00

A
Copy

Postpaid

Trees have ever been connected with human history. Historic trees are those beneath or near which events of continuing interest in the life of State or Nation have occurred. Massachusetts has more of them than any other State in the Union. Some of them were standing before the Pilgrims landed, and still survive. Mr. Simmons describes them all, and shows most of them in the photographs that illustrate the volume.

"The title of the book suggests a topic of purely local interest. In so far as this suggestion militates against the volume, it is unfortunate, for any outdoor enthusiast, any lover of nature, anyone with an affectionate regard for trees, and even the sober historian of America's unromantic development will enjoy the book. The illustrations are clear sepia-toned photographs that delight the eye, and effect an emotional response. It may be whispered that this volume has been listed in trade journals as an example of beautiful bookmaking."—*Chicago Post*.

All Orders to THE AMERICAN FORESTRY ASSOCIATION

914 Fourteenth Street

Washington, D. C.

Mention American Forestry—It Helps

**THE
NATIONAL ENGRAVING CO.**



**1305 E STREET, N.W.
WASHINGTON, D.C.**

**ENGRAVERS
DESIGNERS
AND
ILLUSTRATORS**

—

**3 COLOR PROCESS WORK
ELECTROTYPES**

—

**SUPERIOR QUALITY
& SERVICE**

Phone Main 8274

Why keep a good work to yourself? Tell your friends about AMERICAN FORESTRY and you will be doing them a favor and helping the Association.

WHEN BUG MEETS BUG

Civil war in the insect world is to be further promoted by the United States Department of Agriculture in its fight on the gipsy moth, the insect pest which has caused such great damage to trees and other vegetation in New England and neighboring states. S. S. Crossman and Ray T. Weber, of the Bureau of Entomology, have sailed for Europe to recruit reinforcements for the army of insect enemies of the moth.

In its ancestral European home the gipsy moth was afflicted with hereditary enemies which served to control its numbers. When it was introduced into this country, its enemies stayed behind, with the result that the invader had things all its own way for years. Then the Department of Agriculture imported some of these enemies, which are parasites preying upon the eggs and caterpillars. These were shown to have an appreciable effect in keeping down the numbers of their enemies, and now the department is sending abroad for reinforcements and also to investigate the possible existence of other similar enemies of the pest of the northeastern states.

IN ADDITION to all public expenditures by Federal and state governments in the protection of forests against fire, the amounts now expended by private owners for the protection of their forests total approximately \$1,000,000 a year, according to the annual report of the Forest Service, United States Department of Agriculture. Private outlays for this purpose have been greatly stimulated by the co-operation offered by the Federal Government, and have at least trebled since the work was instituted in 1911.

INSECT-INFESTED TREES MENACE

Healthy appearance is of the utmost importance in shade trees, and no agency is more potent in marring the appearance of these trees than are insects. A defoliated or otherwise bedraggled shade tree is not only worse than none at all but, as a result of insect injury, it is a menace to the health or life of similar trees in the neighborhood.

Practical ways of controlling most of the injurious shade-tree insects are known. Farmers' Bulletin 1169 discusses the more important insects affecting deciduous shade trees in the eastern two-thirds of the United States and gives remedies for them.

The Long Haul From the Woods

[Continued from page 264]

nation, will likewise benefit from the local growing of timber crops and the short haul. It is the solution of the idle forest land question, furnishing a logical use for an area which will otherwise become nearly equal in size to the present total of improved agricultural land in the United States. It thus removes the growing menace of idle forest lands; it affords opportunity for permanent, healthful labor in producing and manufacturing forest crops.

Transient forest industries, with all their unfortunate economic and social consequences, become a thing of the past, and permanent supplies of raw material are assured to local wood-using industries under conditions which permit the existence of small as well as large enterprises. Permanent transportation facilities, so vital in all local development, become essential, and a large volume of traffic is made available. It becomes possible to use profitably the scattered tracts of real agricultural lands characteristic of forest regions. Forest lands become able to pay in perpetuity a fair share of the public revenue, and thereby aid in supporting schools and roads and other public institutions and improvements.

The long haul from the woods is comparatively recent. It has come about almost entirely since the Civil War. While it has not yet reached its extreme in the volume of lumber to be transported for long distances, it is steadily and inevitably tending towards its own downfall, because of the exhaustion of virgin timber supplies, the limitation of transportation facilities, and the excessive burden which it imposes. The rational development which has already begun is towards a short haul to local markets for locally grown timber crops for the great bulk of our lumber and other forest products.

(Because of the pressure of official business, Governor Pinchot's article, THE BLAZED TRAIL OF FOREST DEPLETION, scheduled for this month, will appear in a later number.—EDITOR.)

AMERICAN FORESTRY IS FROM OUR PRESSES



JUDD & DETWEILER, INC.
MASTER PRINTERS

ECKINGTON PLACE AND FLORIDA AVENUE N. E.
WASHINGTON, D. C.

s
f
y
n
e
e
e
l

l
d
n
y
d
e
y
g
r
d
r
f
l
a
t
s
e
n
r

i-
st
s
e
i-
g
e
e
e
n
r
k
s.
y-
er
er

YOU use the FORESTS—

When you build a HOME.

When you eat a MEAL.

When you read a NEWSPAPER.

When you go CAMPING or HUNTING.

When you drive an AUTOMOBILE.

When you ride on a TRAIN.

When you go to the MOVIE.

When you build a FIRE.

In hundreds of other things you do, you use the forest—every day—in one form or another. Abundant forests stand for a better America, a higher standard of living, happier and more prosperous homes, a greater outdoors, better fishing and hunting, more beautiful roads, more wild flowers and wild life—for all that makes for a better, cleaner, and healthier life.

YOU, Mr. American Citizen, are using your FOREST CAPITAL more than four times faster than it is being replaced. If you handled your BANK ACCOUNT in that manner, what would you leave your CHILDREN?

WHAT ARE YOU DOING TO HELP PERPETUATE THE FOREST?

YOU CAN HELP. It will take only a few minutes of your time. Urge your friends to become members of the American Forestry Association, which stands for the protection and perpetuation of American forests in a sane, conscientious way. It is the least you can do to **HELP KEEP FORESTS OUTDOORS AND IN.**

DO THIS FOR YOUR FRIENDS, YOURSELF, AND YOUR CHILDREN.

IN RETURN, they will receive **AMERICAN FORESTRY** which will interest and enlighten their whole family.

**CLIP THE APPLICATION BLANK ON PAGE 312
AND MAKE IT COUNT FOR A MEMBER**

Are You Taking Full Advantage of Your Membership?

*In This
Age
of Saving*

Why go to a book store for what you read? Whether it be fiction, technical, educational, or scientific, your Association will get the books for you at a discount of 10%. The books will be delivered to your home by prepaid parcel-post.

Break the Backbone of Your Costs

and give us a list of the books you want.

TAKE FULL ADVANTAGE OF YOUR MEMBERSHIP

ORDERS AND INQUIRIES TO

THE AMERICAN FORESTRY ASSOCIATION

914 Fourteenth Street N. W.

WASHINGTON, D. C.

Yale School of Forestry

Established in 1906

The two years' technical course prepares for the general practice of forestry and leads to the degree of

Master of Forestry.

Special opportunities in all branches of forestry for

Advanced and Research Work.

For students planning to engage in forestry or lumbering in the Tropics, particularly tropical America, a course is offered in

Tropical Forestry.

Lumbermen and others desiring instruction in special subjects may be enrolled as

Special Students.

The work of the summer term at Milford, Penn., which is a part of the regular course, is open to special students with adequate preparation.

For further information and catalogue address: The Dean of the School of Forestry, New Haven, Connecticut, U. S. A.

The New York State College of Forestry

at Syracuse University,
Syracuse, N. Y.

Special opportunities are offered for graduate work in addition to the regular four-year undergraduate courses. These special courses lead to the degrees of Master of Forestry, Master of City Forestry, Master of Science, Doctor of Philosophy, and Doctor of Economics. A four-year course in Pulp and Paper Manufacture and a short course each spring in Dry-kiln Engineering and Lumber Grading are also given. The State Forest Experiment Station of ninety acres at Syracuse, three other experiment stations, the Roosevelt Wild Life Forest Experiment Station, a modern pulp mill, a well-equipped sawmill, a complete dry-kiln plant, the biological laboratories, and an excellent reference library offer unusual opportunities for investigative work.

Address

FRANKLIN MOON, Dean

HARVARD FOREST

Petersham,
Massachusetts

TWO thousand acres, ten years under management on a sustained yield. Large variety of silvicultural treatment in progress. Logging, milling and marketing annually carried on. Extensive plantations established from the forest nursery.

Specialized graduate training or research leading to the degree of Master of Forestry in the following fields: Silviculture and Management, Operation of Timberlands, Wood Technology, Forest Entomology, Dendrology, and (in co-operation with the Harvard Graduate School of Business Administration) the Lumber Business.

For further information address

RICHARD T. FISHER

Director

Department of Forestry

The Pennsylvania State College

Thorough training for the Profession of Forestry in four years

Courses in

**FORESTRY
LUMBERING
WOOD UTILIZATION
CITY FORESTRY**

Practical work in the woods in three camps of eight weeks each, required of all students.

Two-year courses for mature students who offer practical experience in Lumbering, Forestry or other lines.

For further information address

Department of Forestry

**The Pennsylvania State College
STATE COLLEGE, PA.**

UNIVERSITY OF MAINE

ORONO, MAINE

*Maintained by State
and Nation*

THE FORESTRY DEPARTMENT offers a four years' undergraduate curriculum, leading to the degree of Bachelor of Science in Forestry.

Opportunities for full technical training, and for specializing in problems of the northeastern States and Canada.

Complete undergraduate course in Pulp and Paper Making.

For Catalog and further information address

JOHN M. BRISCOE

Professor of Forestry

School of Forestry University of Idaho

Four-Year Course, with opportunity to specialize in General Forestry, Logging Engineering and Forest Grazing.

Forest Ranger Course, of high-school grade, covering one year of eight months.

Special Short Course, covering twelve weeks, designed for those who cannot take the time for the fuller courses.

No tuition is charged for any of the above courses, and other-wise expenses are the lowest.

Correspondence Course. A course in Lumber and Its Uses is given by correspondence, for which a nominal charge is made.

For further particulars address

**Dean, School of Forestry
University of Idaho**

Moscow, - - Idaho

